ISSN 0081-4539

2010-11

THE STATE OF FOOD AND AGRICULTURE



WOMEN IN AGRICULTURE

Closing the gender gap for development

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ISSN 0081-4539

2010-11

THE STATE OF FOOD AND AGRICULTURE

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 2011

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ISBN 978-92-5-106768-0

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Contents

Foreword vi
Acknowledgements viii
Abbreviations and acronyms x

PART I
Women in agriculture: closing the gender gap for development 1

1. The gender gap in agriculture 3
Structure of the report and key messages 5
Key messages of the report 5
2. Women's work 7
Women in agriculture 7
Women in rural labour markets 16
Key messages 22
3. Documenting the gender gap in agriculture 23
Land 23
Livestock 24
Farm labour 26
Education 28
Information and extension 32
Financial services 33
Technology 34
Key messages 36
4. Gains from closing the gender gap 39
Productivity of male and female farmers 40
Production gains from closing the gender gap 41
Other social and economic benefits of closing the gender gap 43
Key messages 45
5. Closing the gender gap in agriculture and rural employment 46
Closing the gap in access to land 46
Closing the gap in rural labour markets 49
Closing the financial services gap 51
Closing the gap in social capital through women's groups 53
Closing the technology gap 56
Key messages 58
6. Closing the gender gap for development 61

PART II
World food and agriculture in review 63

Trends in undernourishment 65
Food production, consumption and trade during the crises 68
Recent trends in agricultural prices: a higher price plateau, and greater price volatility 76
Conclusions 81

PART III
Statistical annex 83

Notes on the Annex tables 85
TABLE A1 Total population, female share of population and rural share of population in 1980, 1995 and 2010 90
TABLE A2 Female share of national, rural and urban population aged 15–49, most recent and earliest observations 97
TABLE A3 Economically active population, female share of economically active population and agricultural share of economically active women in 1980, 1995 and 2010 104
TABLE A4 Economically active population, agricultural share of economically active population and female share of economically active in agriculture in 1980, 1995 and 2010 111
TABLE A5 Share of households in rural areas that are female-headed, most recent and earliest observations, and total agricultural holders and female share of agricultural holders, most recent observations 118
TABLE A6 Share of adult population with chronic energy deficiency (CED – body mass index less than 18.5) by sex and share of children underweight by sex, residence and household wealth quintile, most recent observations 125

References 135
Special chapters of *The State of Food and Agriculture* 146

TABLES

1. Employment in selected high-value agro-industries 21
2. Selected examples of health insurance products targeted towards women 52

BOXES

1. Sex versus gender 4
2. Frequently asked questions about women in agriculture 8
3. Women and unpaid household responsibilities 14
4. Female farmers, household heads and data limitations 24
5. Labour productivity and hunger, nutrition and health 27
6. Women in agricultural higher education and research in Africa 30
7. Smallholder coffee production and marketing in Uganda 37
8. Targeting transfer payments to women for social benefits 44
9. Mama Lus Frut: working together for change 47
10. India's Self Employed Women's Association (SEWA) 54
11. Women in a sustainable rural livelihoods programme in Uganda 59
12. Food emergencies 70
13. Implied volatility as a measure of uncertainty 79
14. Price volatility and FAO's Intergovernmental Groups on Grains and Rice 81

FIGURES

1. Female share of the agricultural labour force 10
2. Proportion of labour in all agricultural activities that is supplied by women 11
3. Proportion of labour for selected crops that is supplied by women 12
4. Employment by sector 17
5. Participation in rural wage employment, by gender 18
6. Conditions of employment in rural wage employment, by gender 19
7. Wage gap between men and women in urban and rural areas 20
8. Share of male and female agricultural holders in main developing regions 25
9. Rural household assets: farm size 25
10. Household livestock assets, in male- and female-headed households 26
11. Education of male and female rural household heads 28
12. Gender differences in rural primary education attendance rates 29
13. Credit use by female- and male-headed households in rural areas 33
14. Fertilizer use by female- and male-headed households 35
15. Mechanical equipment use by female- and male-headed households 36
16. Cereal yield and gender inequality 39
17. Number of undernourished people in the world, 1969–71 to 2010 66
18. Proportion of population that is undernourished in developing regions, 1969–71 to 2010 66
19. Number of undernourished people in 2010, by region 67
20. FAO Food Price Index in real terms, 1961–2010 68
21. Average annual percentage change in GDP per capita at constant prices, 2005–2010 69
22. Annual growth in global food production, consumption and trade, 2006–2010 72
23. Indices of per capita food consumption by geographic region, 2000–10 72
24. Indices of food production by economic group 73
25. Indices of food production by region, 2000–10 74
26. Indices of food export volumes by geographic region, 2000–10 75
27. Indices of food import volumes by geographic region, 2000–10 75
28. FAO Food Price Index and indices of other commodities (fruits, beverages and raw materials), October 2000–October 2010 76
29. Indices of prices of commodities included in the FAO Food Price Index (cereals, oils, dairy, meat and sugar), October 2000–October 2010 77
30. Historic annualized volatility of international grain prices 78
31. Co-movement of energy production costs: ethanol from maize versus petrol from crude oil, October 2006–October 2010 80

Foreword

This edition of *The State of Food and Agriculture* addresses *Women in agriculture: closing the gender gap for development*. The agriculture sector is underperforming in many developing countries, and one of the key reasons is that women do not have equal access to the resources and opportunities they need to be more productive. This report clearly confirms that the Millennium Development Goals on gender equality (MDG 3) and poverty and food security (MDG 1) are mutually reinforcing. We must promote gender equality and empower women in agriculture to win, sustainably, the fight against hunger and extreme poverty. I firmly believe that achieving MDG 3 can help us achieve MDG 1.

Women make crucial contributions in agriculture and rural enterprises in all developing country regions, as farmers, workers and entrepreneurs. Their roles vary across regions but, everywhere, women face gender-specific constraints that reduce their productivity and limit their contributions to agricultural production, economic growth and the well-being of their families, communities and countries.

Women face a serious gender gap in access to productive resources. Women control less land than men and the land they control is often of poorer quality and their tenure is insecure. Women own fewer of the working animals needed in farming. They also frequently do not control the income from the typically small animals they manage. Women farmers are less likely than men to use modern inputs such as improved seeds, fertilizers, pest control measures and mechanical tools. They also use less credit and often do not control the credit they obtain. Finally, women have less education and less access to extension services, which make it more difficult to gain access to and use some of the other resources, such as land, credit and fertilizer. These factors also prevent women from adopting new technologies as readily as men do. The constraints women face are often interrelated and need to be addressed holistically.

The obstacles that confront women farmers mean that they achieve lower yields than their male counterparts. Yet women are as good at farming as men. Solid empirical evidence shows that if women farmers used the same level of resources as men on the land they farm, they would achieve the same yield levels. The yield gap between men and women averages around 20–30 percent, and most research finds that the gap is due to differences in resource use. Bringing yields on the land farmed by women up to the levels achieved by men would increase agricultural output in developing countries between 2.5 and 4 percent. Increasing production by this amount could reduce the number of undernourished people in the world in the order of 12–17 percent. According to FAO's latest estimates, 925 million people are currently undernourished. Closing the gender gap in agricultural yields could bring that number down by as much as 100–150 million people.

These direct improvements in agricultural output and food security are just one part of the significant gains that could be achieved by ensuring that women have equal access to resources and opportunities. Closing the gender gap in agriculture would put more resources in the hands of women and strengthen their voice within the household – a proven strategy for enhancing the food security, nutrition, education and health of children. And better fed, healthier children learn better and become more productive citizens. The benefits would span generations and pay large dividends in the future.

The gender gap is manifest in other ways. Gender relations are social phenomena and it is impossible to separate women's economic spheres from their household activities. Preparing food and collecting firewood and water are time-consuming and binding constraints that must be addressed if women are to be able to spend their time in more rewarding and more productive ways. Interventions must consider women within their family and community contexts. Making rural labour markets function better,

providing labour-saving technologies and public goods and services, would enable women to contribute more effectively to, and benefit more fully from, the economic opportunities offered by agricultural growth.

There exists no blueprint for closing the gender gap in agriculture, as a wide range of inputs, assets, services and markets are involved and the related constraints are interlinked. But with appropriate policies based on accurate information and analysis, progress can be made and the benefits would be significant. The basic principles are clear. We must eliminate all forms of discrimination against women under the law, ensure that access to resources is more equal and that agricultural policies and programmes are gender-aware, and make women's voices heard in decision-making at all levels. Women must be seen as equal partners in sustainable development. Achieving gender equality and empowering women is not only the right thing to do; it is also crucial for agricultural development and food security.



Jacques Diouf
FAO DIRECTOR-GENERAL

Acknowledgements

The State of Food and Agriculture 2010–11 was prepared by members of the Economic and Social Development Department of FAO under the overall leadership of Hafez Ghanem, Assistant Director-General, and Kostas Stamoulis, Director of the Agricultural Development Economics Division (ESA). Additional guidance was provided by Marcela Villarreal, Director, and Eve Crowley, Principal Adviser, of the Gender, Equity and Rural Employment Division (ESW); Pietro Gennari, Director, Statistics Division (ESS); David Hallam, Director, Trade and Markets Division (EST); and Keith Wiebe, Principal Officer, ESA.

The research and writing team for Part I was led by Terri Raney, André Croppenstedt and Gustavo Anríquez and included Sarah Lowder, Ira Matuschke and Jakob Skoet (ESA). Additional inputs were provided by Luisa Cruz, Ana Paula de la O Campos, Stefano Gerosa, Yasmeen Khwaja, Faith Nilsson and Panagiotis Karfakis (ESA); Francesca Dalla Valle, Soline de Villard, Caroline Dookie, John Curry, Zoraida Garcia, Denis Herbel, Regina Laub, Maria Lee, Yianna Lambrou, Marta Osorio, Hajnalka Petrics, Gabriel Rugalema, Libor Stloukal, Sophie Treinen and Peter Wobst (ESW); Magdalena Blum (FAO Office of Knowledge Exchange, Research and Extension); Holger Matthey (EST); Anni McLeod and Frauke Kramer (FAO Animal Production and Health Division); Helga Josupeit, Rebecca Metzner and Stefania Vannuccini (FAO Fisheries and Aquaculture Policy and Economic Division); Robert Mayo (ESS) and Diana Tempelman (FAO Regional Office for Africa). Ines Smyth (Oxfam), Cathy Farnworth (on behalf of IFAD), Elisenda Estruch (ESW) and Julian Thomas and Frank Mischler (ESA) provided valuable comments. We are also grateful to Amy Heyman who read, commented and edited the first draft of the report. The report was prepared in close collaboration with Agnes Quisumbing and Ruth Meinzen-Dick of IFPRI and Cheryl Doss of Yale University. Background papers, partially funded by ESW, were prepared by Cheryl Doss; Julia Behrman, Andrew Dillon, Ruth Vargas Hill, Ephraim Nkonya, Amber Peterman, Esteban J. Quiñones and Agnes Quisumbing, (IFPRI); Christopher Coles, Priya Deshingkar, Rebecca Holmes, Nicola Jones, Jonathan Mitchell and Marcella Vigneri (ODI); Diana Fletschner (Rural Development Institute) and Lisa Kenney (University of Washington); Christine Okali (University of East Anglia); Jan Lundius (independent consultant); and Holger Seebens (KfW Entwicklungsbank). Additional background papers were prepared by the following FAO staff members: Gustavo Anríquez, Yasmeen Khwaja, Lucia Palombi (FAO Emergency Operations and Rehabilitation Division) and Paola Termine (ESW). The report also drew on papers prepared for the FAO-IFAD-ILO Workshop on Gender and Rural Employment and synthesized by Soline de Villard and Jennie Dey de Pryck. The report benefited from two expert consultations, partially funded by the World Bank. In addition to many of those mentioned above, external participants included Isatou Jallow (WFP), Johannes Jütting (OECD), Patricia Biermayr-Jenzano (CIAT), Markus Goldstein and Eija Pehu (World Bank), Maria Hartl and Annina Lubbock (IFAD), Jemima Njuki (ILRI), Thelma Paris (IRRI), Patrick Webb (Tufts University), and Manfred Zeller (University of Hohenheim). Hela Kochbati (Afard), Robert Mazur (Iowa State University) and others made valuable contributions to the Global Forum on Food Security and Nutrition (FSN Forum) on Women in Agriculture, organized by Max Blanck and Renata Mirulla (ESA). We are grateful for many useful comments received at a mini-symposium organized at the International Association of Agricultural Economists Triennial Conference.

In addition, the final draft report was reviewed by Patrick Webb (Tufts University), Diana Fletschner (Rural Development Institute), Thomas P. Thompson (IFDC), Maria Hartl (IFAD), Carmen Diana Deere (UCLA), Susana Lastarria-Corhiel (University of Wisconsin), Jo Swinnen (University of Leuven), Patricia Biermayr-Jenzano, Joanne Sandler and colleagues (UNIFEM), Barbara

Stocking (Oxfam GB), Paul Munro-Faure and Paul Mathieu (FAO Climate, Energy and Tenure Division), Ruth Meinzen-Dick (IFPRI), Agnes Quisumbing (IFPRI), and Cheryl Doss (Yale University). The writing team is most grateful to the workshop participants and other internal and external reviewers of various drafts of the manuscript.

Part II of the report was jointly authored by Sarah Lowder (ESA) and Holger Matthey and Merritt Cluff (EST), under the guidance of Jakob Skoet. Additional inputs were provided by Joshua Dewbre and Kisan Gunjal (EST).

Part III of the report was prepared by Sarah Lowder, with assistance from Brian Carisma and Stefano Gerosa, under the guidance of Terri Raney. Helpful comments were provided by Naman Keita, Seevalingum Ramasawmy, Mukesh Srivastava, and Franco Stefanelli (ESS); Diana Tempelman; Maria Adelaide D'Arcangelo, Zoraida Garcia and Clara Park (ESW), and Barbara Burlingame and Marie-Claude Dop (FAO Nutrition and Consumer Protection Division).

The publication was greatly enhanced by Michelle Kendrick (ESA) who provided English editorial and project management support. Liliana Maldonado and Paola di Santo (ESA) provided excellent administrative support throughout the process. Translations and printing services were provided by the Meeting Programming and Documentation Service of the FAO Corporate Services, Human Resources and Finance Department. Graphic, layout and proofing services were provided by Flora Dicarlo and Visiontime.

Abbreviations and acronyms

CED	chronic energy deficiency
CIAT	International Centre for Tropical Agriculture
FFS	Farmer field school
FPI	Food Price Index (FAO)
ICTs	information and communication technologies
IFAD	International Fund for Agricultural Development
IFDC	International Fertilizer Development Center
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
IMF	International Monetary Fund
LSMS	Living Standards Measurement Study
MDG	Millennium Development Goal
NGOs	non-governmental organizations
NREGA	National Rural Employment Guarantee Act (India)
ODI	Overseas Development Institute (United Kingdom)
OECD	Organisation for Economic Co-operation and Development
RIGA	Rural Income Generating Activities
SIGI	Social Institutions and Gender Inequality
UCLA	University of California, Los Angeles (United States of America)
UNDP	United Nations Development Programme
UNIFEM	United Nations Development Fund for Women
WFP	World Food Programme

Part I

WOMEN IN AGRICULTURE

CLOSING THE GENDER GAP FOR DEVELOPMENT



Part I





1. The gender gap in agriculture

Agriculture is underperforming in many developing countries for a number of reasons. Among these is the fact that women lack the resources and opportunities they need to make the most productive use of their time. Women are farmers, workers and entrepreneurs, but almost everywhere they face more severe constraints than men in accessing productive resources, markets and services. This "gender gap" hinders their productivity and reduces their contributions to the agriculture sector and to the achievement of broader economic and social development goals. Closing the gender gap in agriculture would produce significant gains for society by increasing agricultural productivity, reducing poverty and hunger and promoting economic growth.

Governments, donors and development practitioners now recognize that agriculture is central to economic growth and food security – particularly in countries where a significant share of the population depends on the sector – but their commitment to gender equality in agriculture is less robust. Gender issues are now mentioned in most national and regional agricultural and food-security policy plans, but they are usually relegated to separate chapters on women rather than treated as an integral part of policy and programming. Many agricultural policy and project documents still fail to consider basic questions about the differences in the resources available to men and women, their roles and the constraints they face – and how these differences might be relevant to the proposed intervention. As a result, it is often assumed that interventions in areas such as technology, infrastructure and market access have the same impacts on men and women, when in fact they may not.

At the same time, building a gender perspective into agricultural policies and projects has been made to seem more difficult and complex than it need be. Clarification of what is meant by gender is a good place to start (Box 1).

The last sentence in Box 1 also gives room for hope: gender roles *can* change. It is the goal of this report that it will contribute to improving understanding so that appropriate policies can help foster gender equality, even as agriculture itself is changing. The agriculture sector is becoming more technologically sophisticated, commercially oriented and globally integrated; at the same time, migration patterns and climate variability are changing the rural landscape across the developing world. These forces pose challenges and present opportunities for all agricultural producers, but women face additional legal and social barriers that limit their ability to adapt to and benefit from change. Governments and donors have made major commitments aimed at revitalizing agriculture in developing regions, but their efforts in agriculture will yield better results more quickly if they maximize the productive potential of women by promoting gender equality.

Women, like men, can be considered "productive resources", but they are also citizens who have an equal claim with men

BOX 1
Sex versus gender

The concepts of "sex" and "gender" can be confusing, not least because even the experts sometimes use them inconsistently. Sex refers to the innate biological categories of male or female. Gender refers to the social roles and identities associated with what it means to be a man or a woman. Gender roles are shaped by ideological, religious, ethnic, economic and cultural factors and are a key determinant of the distribution of responsibilities and resources between men and women (Moser, 1989). Being socially determined, however, this distribution can be changed through conscious social action, including public policy. Every society is marked by gender differences, but these vary widely by culture and can change dramatically over time. Sex is biology. Gender is sociology. Sex is fixed. Gender roles change.

Source: Quisumbing, 1996.

on the protections, opportunities and services provided by their governments and the international community. Gender equality is a Millennium Development Goal (MDG) in its own right, and it is directly related to the achievement of the MDG targets on reducing extreme poverty and hunger. Clear synergies exist between the gender-equality and hunger-reduction goals. Agricultural policy-makers and development practitioners have an obligation to ensure that women are able to participate fully in, and benefit from, the process of agricultural development. At the same time, promoting gender equality in agriculture can help reduce extreme poverty and hunger. Equality for women would be good for agricultural development, and agricultural development should also be good for women.

The roles and status of women in agriculture and rural areas vary widely by region, age, ethnicity and social class and are changing rapidly in some parts of the world. Policy-makers, donors and development practitioners need information and analysis that reflect the diversity of the contributions women make and the specific challenges they are confronted with in order to make gender-aware decisions about the sector.

Despite the diversity in the roles and status of women in agriculture, the evidence and analysis presented in this report confirm that women face a surprisingly consistent gender gap in access to productive assets, inputs and services. A large body of empirical evidence from many different countries shows that female farmers are just as efficient as their male counterparts, but they have less land and use fewer inputs, so they produce less. The potential gains that could be achieved by closing the gender gap in input use are estimated in this report in terms of agricultural yields, agricultural production, food security and broader aspects of economic and social welfare.

Because many of the constraints faced by women are socially determined, they can change. What is more, external pressures often serve as a catalyst for women to take on new roles and responsibilities that can improve their productivity and raise their status within households and communities. For example, the growth of modern supply chains for high-value agricultural products is creating significant opportunities – and challenges – for women in on-farm and off-farm employment. Other forces for social and economic change can also translate into opportunities for women.

Gender-aware policy support and well-designed development projects can help close the gender gap. Given existing inequities, it is not enough that policies be gender-neutral; overcoming the constraints faced by women requires much more. Reforms aimed at eliminating discrimination and promoting equal access to productive resources can help ensure that women – and men – are equally prepared to cope with the challenges and to take advantage of the opportunities arising from the changes

shaping the rural economy. Closing the gender gap in agriculture will benefit women, the agriculture and rural sectors, and society as a whole. The gains will vary widely according to local circumstances, but they are likely to be greater where women are more involved in agriculture and face the most severe constraints.

While it seems obvious that closing the gender gap would be beneficial, evidence to substantiate this potential has been lacking. This edition of *The State of Food and Agriculture* has several goals: to bring the best available empirical evidence to bear on the contributions women make and the constraints they face in agricultural and rural enterprises in different regions of the world; to demonstrate how the gender gap limits agricultural productivity, economic development and human well-being; to evaluate critically interventions aimed at reducing the gender gap and to recommend practical steps that national governments and the international community can take to promote agricultural development by empowering women.

Structure of the report and key messages

Chapter 2 provides a survey of the roles and status of women in agriculture and rural areas in different parts of the world. It brings the best, most comprehensive available evidence to bear on a number of controversial questions that are both conceptually and empirically challenging. It focuses on women's contributions as farmers and agricultural workers and examines their status in terms of poverty, hunger and nutrition, and rural demographics. It also looks at the ways in which the transformation of agriculture and the emergence of high-value marketing chains are creating challenges and opportunities for women.

Chapter 3 documents the constraints facing women in agriculture across a range of assets: land, livestock, farm labour, education, extension services, financial services and technology.

Chapter 4 surveys the economic evidence on the productivity of male and female farmers and estimates the gains that could be achieved by closing the gender gap in agricultural input use. Potential gains in agricultural yields, agricultural production, food security and broader aspects of economic and social welfare are assessed.

Chapter 5 advances specific policies and programmes that can help close the gender gap in agriculture and rural employment. The focus is on interventions that alleviate constraints on agricultural productivity and rural development.

Chapter 6 provides broader recommendations for closing the gender gap for development.

Key messages of the report

- Women make essential contributions to agriculture in developing countries, but their roles differ significantly by region and are changing rapidly in some areas. Women comprise, on average, 43 percent of the agricultural labour force in developing countries, ranging from 20 percent in Latin America to 50 percent in Eastern Asia and sub-Saharan Africa. Their contribution to agricultural work varies even more widely depending on the specific crop and activity.
- Women in agriculture and rural areas have one thing in common across regions: they have less access than men to productive resources and opportunities. The gender gap is found for many assets, inputs and services – land, livestock, labour, education, extension and financial services, and technology – and it imposes costs on the agriculture sector, the broader economy and society as well as on women themselves.
- Closing the gender gap in agriculture would generate significant gains for the agriculture sector and for society. If women had the same access to productive resources as men, they could increase yields on their farms by 20–30 percent. This could raise total agricultural output in developing countries by 2.5–4 percent, which could in turn reduce the number of hungry people in the world by 12–17 percent.

The potential gains would vary by region depending on how many women are currently engaged in agriculture, how much production or land they control, and how wide a gender gap they face.

- Policy interventions can help close the gender gap in agriculture and rural labour markets. Priority areas for reform include:
  - eliminating discrimination against women in access to agricultural resources, education, extension and financial services, and labour markets;
  - investing in labour-saving and productivity-enhancing technologies and infrastructure to free women's time for more productive activities; and
  - facilitating the participation of women in flexible, efficient and fair rural labour markets.

2. Women's work

Women make essential contributions to agriculture and rural economic activities in all developing country regions.[1] Their roles vary considerably among and within regions and are changing rapidly in many parts of the world where economic and social forces are transforming the agriculture sector. The emergence of contract farming and modern supply chains for high-value agricultural products, for example, present different opportunities and challenges for women than they do for men. These differences derive from the different roles and responsibilities of women and the constraints that they face.

Rural women often manage complex households and pursue multiple livelihood strategies. Their activities typically include producing agricultural crops, tending animals, processing and preparing food, working for wages in agricultural or other rural enterprises, collecting fuel and water, engaging in trade and marketing, caring for family members and maintaining their homes (see Box 2 for some of the frequently asked questions on the roles and status of women in agriculture). Many of these activities are not defined as "economically active employment" in national accounts but they are all essential to the well-being of rural households (see Box 3, page 14, for a discussion of women's household responsibilities).

Women often face gender-specific challenges to full participation in the labour force, which may require policy interventions beyond those aimed at promoting economic growth and the efficiency of rural labour markets. Policies can influence the economic incentives and social norms that determine whether women work, the types of work they perform and whether it is considered an economic activity, the stock of human capital they accumulate and the levels of pay they receive. Increasing female participation in the labour force has a positive impact on economic growth (Klasen and Lamanna, 2009).

Women in agriculture

Women work in agriculture as farmers on their own account, as unpaid workers on family farms and as paid or unpaid labourers on other farms and agricultural enterprises. They are involved in both crop and livestock production at subsistence and commercial levels. They produce food and cash crops and manage mixed agricultural operations often involving crops, livestock and fish farming. All of these women are considered part of the agricultural labour force.[2]

Based on the latest internationally comparable data, women comprise an average of 43 percent of the agricultural labour force of developing countries. The female share of the agricultural labour force ranges from about 20 percent in Latin America to almost 50 percent in Eastern and Southeastern Asia and sub-Saharan Africa (Figure 1). The regional averages in Figure 1 mask wide variations within and among countries (see Annex tables A3 and A4).

Women in sub-Saharan Africa have relatively high overall labour-force participation rates and the highest average agricultural labour-force participation rates in the world. Cultural norms in the region have long encouraged women to be economically self-reliant and traditionally give women substantial responsibility for agricultural production in their own right. Regional data for sub-Saharan Africa conceal wide differences among countries. The share of women in the agricultural labour force

[1] The material in this chapter is based on FAO (2010a).

[2] The agricultural labour force includes people who are working or looking for work in formal or informal jobs and in paid or unpaid employment in agriculture. That includes self-employed women as well as women working on family farms. It does not include domestic chores such as fetching water and firewood, preparing food and caring for children and other family members.

BOX 2
Frequently asked questions about women in agriculture

Question 1: How much of the agricultural labour in the developing world is performed by women?
Answer: Women comprise 43 percent of the agricultural labour force, on average, in developing countries; this figure ranges from around 20 percent in Latin America to 50 percent in parts of Africa and Asia, but it exceeds 60 percent in only a few countries (FAO, 2010a). Critics argue that labour force statistics underestimate the contribution of women to agricultural work because women are less likely to declare themselves as employed in agriculture and they work longer hours than men (Beneria, 1981), but evidence from time-use surveys does not suggest that women perform most of the agricultural labour in the developing world (see Chapter 2).

Question 2: What share of the world's food is produced by women?
Answer: This question cannot be answered in any empirically rigorous way because of conceptual ambiguities and data limitations. Different definitions of "food" and "production" would yield different answers to the question and, more importantly, food production requires many resources – land, labour, capital – controlled by men and women who work cooperatively in most developing countries, so separating food production by gender is not very meaningful (Doss, 2010).

Question 3: Do women have less access than men to agricultural resources and inputs?
Answer: Yes, this is one generalization about women in agriculture that holds true across countries and contexts: compared with their male counterparts, female farmers in all regions control less land and livestock, make far less use of improved seed varieties and purchased inputs such as fertilizers, are much less likely to use credit or insurance, have lower education levels and are less likely to have access to extension services (see Chapter 3).

Question 4: Do women and girls comprise the majority of the world's poor people?
Answer: Poverty is normally measured in terms of income or consumption at the household level, not for individuals, so separate poverty rates for men and women cannot be calculated. Females could be overrepresented among the poor if female-headed households are poorer than male-headed households (see Question 6) or if significant anti-female bias exists within households (see Question 7). Females may be poorer than males if broader measures of poverty are considered, such as access to productive resources (see Question 3).

Question 5: Do women face discrimination in rural labour markets?

ranges from 36 percent in Côte d'Ivoire and the Niger to over 60 percent in Lesotho, Mozambique and Sierra Leone. A number of countries have seen substantial increases in the female share of the agricultural labour force in recent decades due to a number of reasons, including conflict, HIV/AIDS and migration.

Women in Eastern and Southeastern Asia also make very substantial contributions to the agricultural labour force, almost as high on average as in sub-Saharan Africa. The regional average is dominated by China, where the female share of the agricultural labour force has increased slightly since 1980 to almost 48 percent. The share of women in the agricultural labour force in most other countries in the region has remained fairly steady at between 40 and 50 percent, although it is substantially lower and declining in some countries such as Malaysia and the Philippines.

The Southern Asian average is dominated by India, where the share of women in the agricultural labour force has remained steady at just over 30 percent. This masks changes

Answer: In most countries and in keeping with global figures, women in rural areas who work for wages are more likely than men to hold seasonal, part-time and low-wage jobs and (controlling for education, age and industry) women receive lower wages for the same work (see Chapter 2).

Question 6: Are female-headed households the poorest of the poor?
Answer: Data from 35 nationally representative surveys for 20 countries analysed by FAO show that female-headed households are more likely to be poor than male-headed households in some countries but the opposite is true in other countries – so it is not possible to generalize. Data limitations also make it impossible to distinguish systematically between households headed by women who are single, widowed or divorced (*de jure* female heads) and those who are associated with an adult male who supports the family through remittances and social networks (*de facto* female heads). It is likely that the former are more likely to be poor than the latter (Anríquez, 2010). There is also evidence to suggest that rural female-headed households were more vulnerable than males during the food price shock of 2008 because they spend a larger proportion of household income on food and because they were less able to respond by increasing food production (Zezza *et al.*, 2008). Again, these results vary by country.

Question 7: Are women and girls more likely than men and boys to be undernourished?
Answer: A positive answer to this statement is not supported by available evidence, and generalizations are difficult to make. The limited evidence available suggests that this may be true in Asia, while it is not true in Africa. More sex-disaggregated data of better quality on anthropometric and other indicators of malnutrition are needed to arrive at clear conclusions. There is, however, evidence that girls are much more vulnerable to transitory income shocks than boys (Baird, Friedman and Schady, 2007).

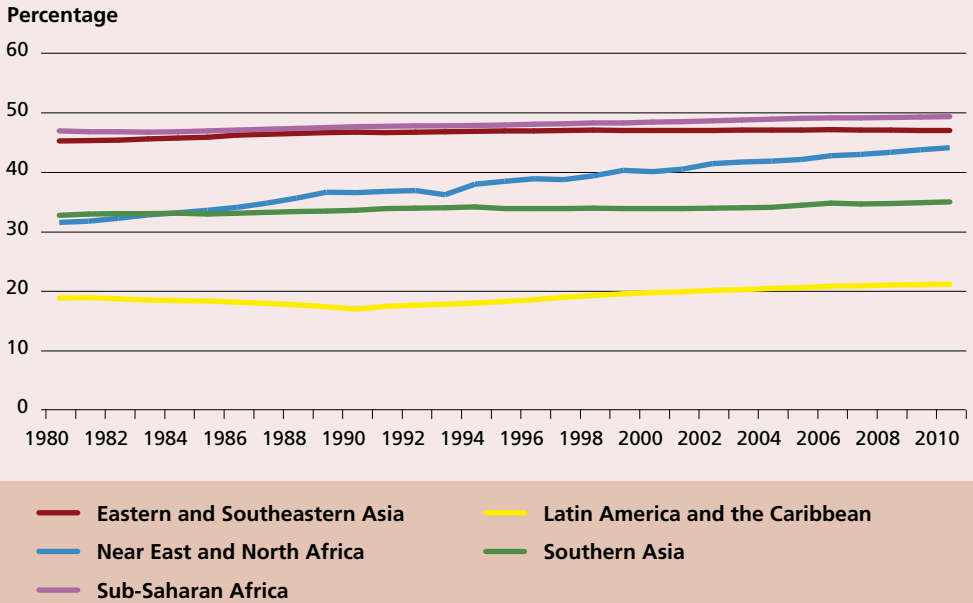
Question 8: Are women more likely than men to spend additional income on their children?
Answer: A very large body of research from many countries around the world confirms that putting more income in the hands of women yields beneficial results for child nutrition, health and education. Other measures – such as improving education – that increase women's influence within the household are also associated with better outcomes for children. Exceptions exist, of course, but empowering women is a well-proven strategy for improving children's well-being (see Chapter 4).

in other countries where the female share of the agricultural labour force appears to have increased dramatically, such as Pakistan where it has almost tripled since 1980, to 30 percent, and Bangladesh where women now exceed 50 percent of the agricultural labour force.

The female share of the agricultural labour force in the Near East and North Africa appears to have risen substantially, from 30 percent in 1980 to almost 45 percent. Some of the highest and fastest-growing rates of female agricultural labour force participation in the region are found in Jordan, the Libyan Arab Jamahiriya and the Syrian Arab Republic.

The countries of Latin America have high overall female labour-force participation rates, but much lower participation in agriculture than those in other developing country regions. This pattern reflects relatively high female education levels (see Chapter 4), economic growth and diversification, and cultural norms that support female migration to service jobs in urban areas. Just over 20 percent of the

FIGURE 1
Female share of the agricultural labour force



Note: The female share of the agricultural labour force is calculated as the total number of women economically active in agriculture divided by the total population economically active in agriculture. Regional averages are weighted by population.

Source: FAO, 2010b. See Annex table A4.

agricultural labour force in Latin America was female in 2010, slightly higher than in 1980. The South American countries of the Plurinational State of Bolivia, Brazil, Colombia, Ecuador and Peru dominate both the average and the rising trend, while many countries in Central America and the Caribbean have seen declining shares of women in the agricultural labour force.

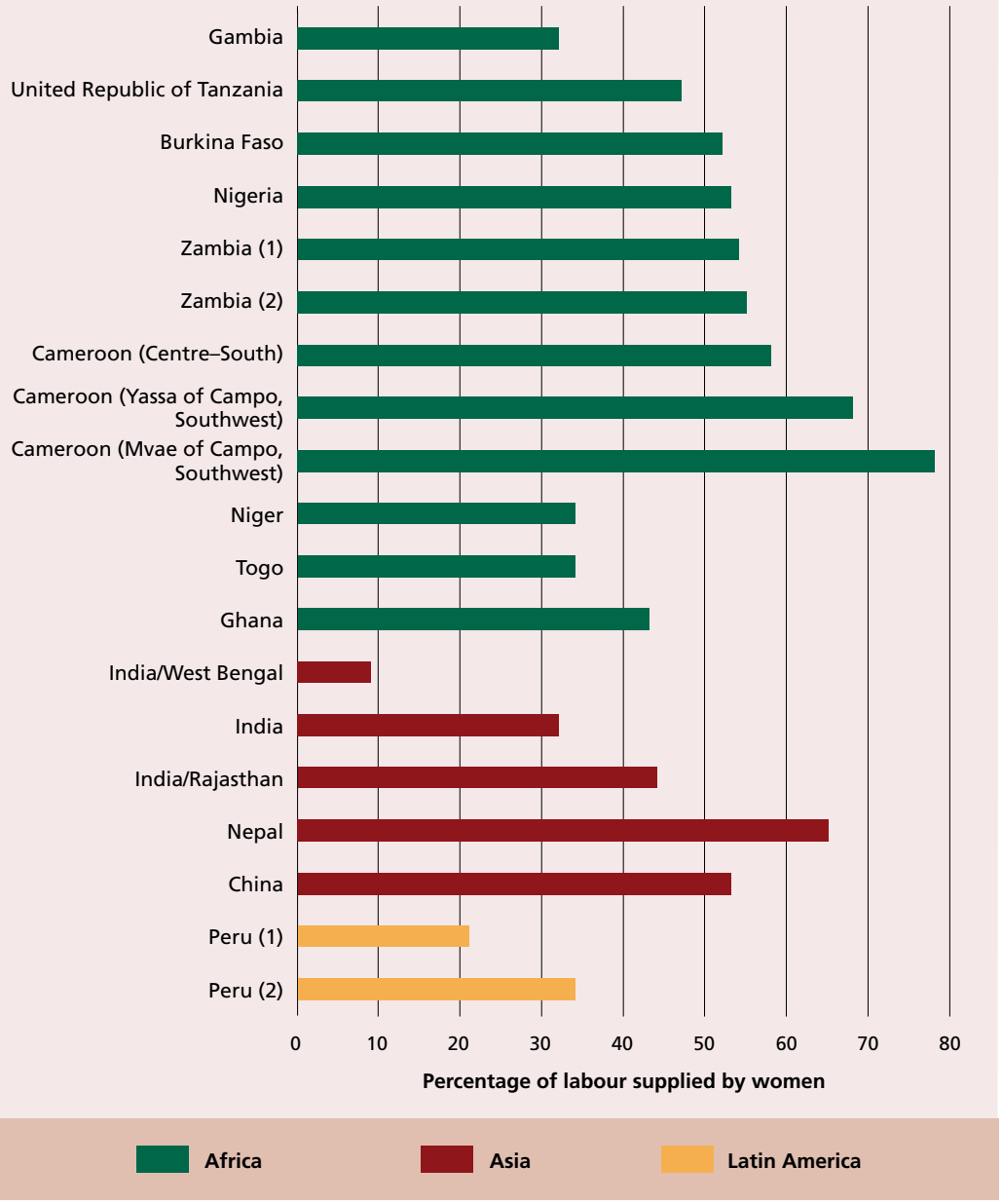
Although in some countries sex-disaggregated data collection has improved over recent decades, some researchers have raised concerns as to the validity of agricultural labour-force statistics as a measure of women's work in agriculture (Beneria, 1981; Deere, 2005). Women's participation in the agricultural labour force may underestimate the amount of work women do because women are less likely than men to define their activities as work, they are less likely to report themselves as being engaged in agriculture and they work, on average, longer hours than men – so even if fewer women are involved they may contribute more total time to the sector.

Time-use surveys attempt to provide a complete account of how men and women allocate their time.[3] Such studies generally are not nationally representative and are not directly comparable because they usually cover small samples, report on different types of activities (that are not always clearly specified) and use different methodologies. Despite these caveats, a summary of the evidence from studies that specify time use by agricultural activity suggests interesting patterns.

Time-use surveys that cover all agricultural activities (Figure 2) reveal considerable variation across countries, and sometimes within countries, but the data are broadly similar to the labour force statistics discussed above. In Africa, estimates of the time contribution of women to agricultural

[3] It is commonly claimed that women perform 60–80 percent of the agricultural labour in developing countries (UNECA, 1972; World Bank, FAO and IFAD, 2009). The evidence from time-use surveys and agricultural labour-force statistics does not support this general statement, although women do comprise over 60 percent of the agricultural labour force in some countries.

FIGURE 2
Proportion of labour in all agricultural activities that is supplied by women



Note: Only the survey for India is nationally representative.

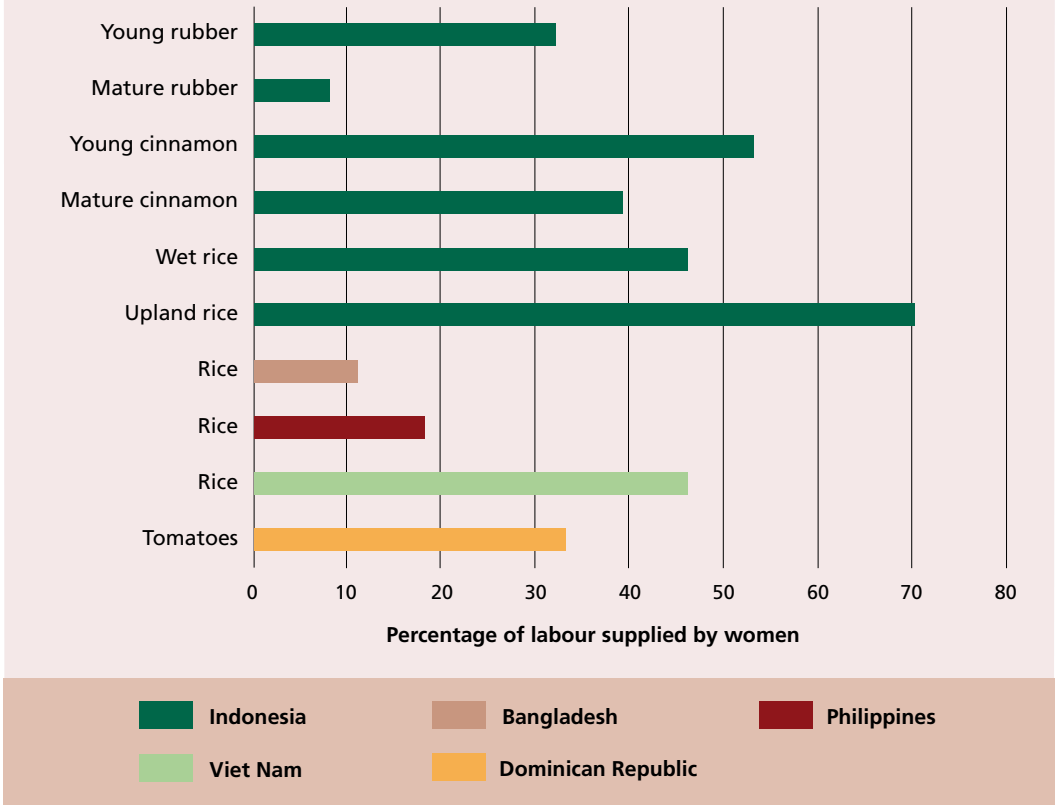
Sources (from top to bottom): Gambia: von Braun and Webb, 1989; United Republic of Tanzania: Fontana and Natali, 2008; Burkina Faso: Saito, Mekonnen and Spurling, 1994; Nigeria: Rahji and Falusi, 2005; Zambia (1): Saito, Mekonnen and Spurling, 1994; Zambia (2): Kumar, 1994; Cameroon, Centre–South: Leplaideur, 1978, cited by Charmes, 2006: Cameroon (Yasssa of Campo, Southwest): Charmes, 2006, based on Pasquet and Koppert, 1993 and 1996; Cameroon (Mvae of Campo, Southwest): Charmes, 2006, based on Pasquet and Koppert, 1993 and 1996; Niger: Baanante, Thompson and Acheampong, 1999; Togo: Baanante, Thompson and Acheampong, 1999; Ghana: Baananate, Thompson and Acheampong, 1999; India (West Bengal): Jain, 1996; India: Singh and Sengupta, 2009; India (Rajasthan): Jain, 1996; Nepal: Joshi, 2000; China: de Brauw *et al.*, 2008; Peru (1): Deere, 1982; Peru (2): Jacoby, 1992.

activities ranges from about 30 percent in the Gambia to 60–80 percent in different parts of Cameroon. In Asia, estimates range from 32 percent in India to over 50 percent in China. The range is lower in Latin America, but exceeds 30 percent in some parts of Peru. A striking degree of within-country variation is shown by the study for India. While this nationally representative study indicates that the national average for women's share of total time-use in agriculture is 32 percent, the share ranges from less than 10 percent in West Bengal to more than 40 percent in Rajasthan.

These studies also reveal that female time-use in agriculture varies widely depending on the crop and the phase of the production cycle, the age and ethnic group of the women in question, the type of activity and a number of other factors (Figure 3). Planting is a predominantly female activity, but women are typically involved to some extent in all activities except ploughing.

Studies from Indonesia reveal greater involvement of women in upland rice production than that of wet rice and in the management of young plantation crops such as cinnamon and rubber rather than the same crops at maturity. As noted above, the data for India hide wide variations between West Bengal and Rajasthan, but in both areas, younger women contribute a higher share of the total time provided in agriculture by their age group than older women do in theirs. In Rajasthan, for example, girls aged between 14 and 19 contribute up to 60 percent of the total time spent on agriculture by their age group (Jain, 1996). Two separate studies are reported each for Peru and Zambia, and differences

FIGURE 3
Proportion of labour for selected crops that is supplied by women



Sources (from top to bottom): Indonesia (young rubber): Quisumbing and Otsuka, 2001a; Indonesia (mature rubber): Quisumbing and Otsuka, 2001a; Indonesia (young cinnamon): Quisumbing and Otsuka, 2001a; Indonesia (mature cinnamon): Quisumbing and Otsuka, 2001a; Indonesia (wet rice): Quisumbing and Otsuka, 2001a; Indonesia (upland rice): Quisumbing and Otsuka, 2001a; Bangladesh: Thompson and Sanabria, 2010; Philippines: Estudillo, Quisumbing and Otsuka, 2001; Viet Nam: Paris and Chi, 2005; Dominican Republic: Raynolds, 2002.

reflect different time periods and locations within the countries.

Time-use studies permit a rich analysis of what men and women do in agriculture and how their roles may differ by crop, location, management structure, age and ethnic group. They offer policy-relevant information about where, when and how to target interventions aimed at women and how to bring men into the process constructively. Given the variation in gender roles in agriculture, generalizations about time use from one region to another are not appropriate. Studies that consider the gender roles within their specific geographic and cultural context can provide practical guidance for policy-makers and practitioners involved in technology investments, extension services, post-harvest activities and marketing interventions.

One generalization that does hold is that women usually allocate time to food preparation, child care and other household responsibilities in addition to the time they spend in agriculture (see Box 3). In most societies, household responsibilities are divided along gender lines, although these norms differ by culture and over time. Depending on the household structure and size, these tasks may be extremely time-intensive. Across regions, time allocation studies have shown that women work significantly more than men if care-giving is included in the calculations (Ilahi, 2000). The combination of commitments often means that women are more time-constrained than men (Blackden and Wodon, 2006).

Women in modern contract-farming[4]

One noteworthy feature of modern agricultural value chains is the growth of contract farming or out-grower schemes for high-value produce through which large-scale agroprocessing firms seek to ensure a steady supply of quality produce. Such schemes can help small-scale farmers and livestock producers overcome the technical barriers and transaction costs involved in meeting the increasingly stringent demands of urban consumers in domestic and international markets.

Evidence shows, however, that female farmers are largely excluded from modern contract-farming arrangements because they lack secure control over land, family labour and other resources required to guarantee delivery of a reliable flow of produce. For example, women comprise fewer than 10 percent of the farmers involved in smallholder contract-farming schemes in the Kenyan fresh fruit and vegetable export sector (Dolan, 2001), and only 1 of a sample of 59 farmers contracted in Senegal to produce French beans for the export sector was a woman (Maertens and Swinnen, 2009).

While men control the contracts, however, much of the farm work done on contracted plots is performed by women as family labourers. For example, in 70 percent of the cases of sugar contract-farming in South Africa, the principal farmer on the sugar-cane plots is a woman (Porter and Philips-Horward, 1997). Women work longer hours than men in vegetable contract-farming schemes controlled by male farmers in the Indian Punjab (Singh, 2003). In a large contract-farming scheme involving thousands of farmers in China, women – while excluded from signing contracts themselves – perform the bulk of the work related to contract farming (Eaton and Shepherd, 2001). Women may not be well compensated as unpaid family labour in contract-farming schemes (Maertens and Swinnen, 2009).

Evidence is mixed regarding whether contract farming increases overall household incomes or creates conflicts between the production of cash crops and food crops. For example, Dolan (2001) argues that the growth of high-value horticulture supply chains has been detrimental for rural women in Kenya because land and labour resources that were traditionally used by women to cultivate vegetables for home consumption and sale in local markets have been appropriated by men for export vegetable production under contract. On the other hand, although their results are not gender-specific, Minten, Randrianarison and Swinnen (2009), find that high-value vegetable contract-farming in Madagascar leads to improved productivity for food (rice) production through technology spillovers, thereby improving the availability of food in the household and shortening the lean

[4] The material in this section is based on Maertens and Swinnen (2009).

BOX 3
Women and unpaid household responsibilities

Women have primary responsibilities for household and child-rearing activities in most societies, although norms differ by culture and are changing over time. Time-use surveys across a wide range of countries estimate that women provide 85–90 percent of the time spent on household food preparation and that they are also usually responsible for child care and other household chores. The combined time burden of household chores and farm work is particularly severe for women in Africa (Ilahi, 2000).

Ghanaian women carry a much heavier burden for household chores despite working outside the home almost as much as men (Brown, 1994). In Uganda, women cite the time they spend looking after their families, working in their husbands' gardens and producing food for their households as reasons for their inability to expand production for the market (Ellis, Manuel and Blackden, 2006). Women and girls in Ghana, the United Republic of Tanzania and Zambia are responsible for about 65 percent of all transport activities in rural households, such as collecting firewood and water and carrying grain to the grinding mill (Malmberg-Calvo, 1994).

Because of the gender-specific assignment of tasks, any change affecting the family or the environment may have different implications for men and women. HIV/AIDS, for example, has caused a significant increase in the time needed to care for sick family members or the orphaned children of relatives (Addati and Cassirer, 2008). Deforestation leads women to travel increasing distances from the homestead to collect firewood (Kumar and Hotchkiss, 1988; Nankhuni, 2004).

Poor infrastructure and limited provision of public services require Tanzanian women in rural areas to spend long hours on water and fuel collection, food preparation and other domestic and child-care activities. Improving public infrastructure for water and fuel collection and food preparation (e.g. grain-milling facilities) could free women in the United Republic of Tanzania from a burden that represents 8 billion hours of unpaid work per year, which is equivalent to the hours required for 4.6 million full-time jobs. The same improvements would save time for men also, but less: the time-equivalent of 200 000 full-time jobs (Fontana and Natali, 2008).

period or "hunger season". Maertens and Swinnen (2009) do not find evidence of gender conflict over resources in the French bean export sector in Senegal because households only allocate part of their land and labour resources to bean production, which occurs during the off-season and does not coincide with the main rainy season when staple food crops and other subsistence crops are cultivated.

Women as livestock keepers[5]

Within pastoralist and mixed farming systems, livestock play an important role in supporting women and in improving their financial situation, and women are heavily engaged in the sector. An estimated two-thirds of poor livestock keepers, totalling approximately 400 million people, are women (Thornton *et al.*, 2002). They share responsibility with men and children for the care of animals, and particular species and types of activity are more associated with women than men. For example, women often have a prominent role in managing poultry (FAO, 1998; Guèye, 2000; Tung, 2005) and dairy animals (Okali and Mims, 1998; Tangka, Jabbar and Shapiro, 2000) and in caring for other animals that are housed and fed within the homestead. When tasks are divided, men are more likely to be involved in constructing housing and the herding of grazing animals, and in marketing products if women's mobility is constrained. The influence of women is strong in the use of eggs, milk and poultry

[5] The material in this section was prepared by FAO's Agriculture and Consumer Protection Department, Animal Production and Health Division.

meat for home consumption and they often have control over marketing these products and the income derived from them. Perhaps for this reason, poultry and small-scale dairy projects have been popular investments for development projects that aim to improve the lot of rural women. In some countries, small-scale pig production is also dominated by women. Female-headed households are as successful as male-headed households in generating income from their animals, although they tend to own smaller numbers of animals, probably because of labour constraints. Livestock ownership is particularly attractive to women in societies where access to land is restricted to men (Bravo-Baumann, 2000).

While the role of women in small-scale livestock production is well recognized, much less has been documented about women's engagement in intensive production and the market chains associated with large commercial enterprises. Demand for livestock products, fuelled by rising incomes, has grown much faster than the demand for crop staples during the past 40 years – particularly in Asia and Latin America – and this trend is expected to continue. While pastoralist and small-scale mixed-farming systems continue to be important in meeting the needs of rural consumers, the demands of growing urban populations are increasingly supplied with meat, milk and eggs from intensive commercial systems. This has implications for the engagement of women in the livestock sector because of the different roles, responsibilities and access to resources that are evident within different scales of production system and at different points on the production and marketing chain.

The available evidence suggests that the role of women in meeting these changing demands may diminish, for two reasons. The first is that when livestock enterprises scale up, the control over decisions and income, and sometimes the entire enterprise, often shifts to men. This is not a universal phenomenon – in Viet Nam, for example, many medium-sized duck-breeding enterprises are managed by women – but it is common and can be explained by women's limited access to land and credit. The second important factor is that all smallholders face challenges when the livestock sector intensifies and concentrates and many go out of business. This is particularly evident for pig and poultry owners (Rola *et al.*, 2006) but is not confined to those species. Given the more limited ability of women to start their own businesses, this implies that they will tend to become employees rather than self-employed. In specialized activities such as the production of day-old chicks, and in slaughtering, processing and retail, women are visible wherever painstaking semi-skilled work is to be done, but very little research data are available about the extent of their involvement compared with that of men, or their control over resources.

Women in fisheries and aquaculture[6]

In 2008, nearly 45 million people worldwide were directly engaged, full time or part time, in the fishery primary sector.[7] In addition, an estimated 135 million people are employed in the secondary sector, including post-harvest activities. While comprehensive data are not available on a sex-disaggregated basis, case studies suggest that women may comprise up to 30 percent of the total employment in fisheries, including primary and secondary activities.

Information provided to FAO from 86 countries indicates that in 2008, 5.4 million women worked as fishers and fish farmers in the primary sector. This represents 12 percent of the total. In two major producing countries, China and India, women represented a share of 21 percent and 24 percent, respectively, of all fishers and fish farmers.

Women have rarely engaged in commercial offshore and long-distance capture fisheries because of the vigorous work involved but also because of their domestic responsibilities and/or social norms. They are more commonly occupied in subsistence and commercial fishing from small boats and canoes in coastal or inland waters. Women also contribute as entrepreneurs and provide labour before, during and after the catch in both artisanal and commercial fisheries. For example, in West Africa, the so called "Fish Mamas" play a major role: they usually

[6] The material in this section was prepared by FAO's Fisheries and Aquaculture Department.

[7] FAO's Fisheries and Aquaculture Department regularly collects employment statistics in fisheries and aquaculture related to the primary sector only. The data therefore exclude post-harvest activities.

own capital and are directly and vigorously involved in the coordination of the fisheries chain, from production to the sale of fish.

Studies of women in aquaculture, especially in Asia where aquaculture has a long tradition, indicate that the contribution of women in labour is often greater than men's, although macro-level sex-disaggregated data on this topic is almost non-existent. Women are reported to constitute 33 percent of the rural aquaculture workforce in China, 42 percent in Indonesia and 80 percent in Viet Nam (Kusabe and Kelker, 2001).

The most significant role played by women in both artisanal and industrial fisheries is at the processing and marketing stages, where they are very active in all regions. In some countries, women have become significant entrepreneurs in fish processing; in fact, most fish processing is performed by women, either in their own household-level industries or as wage labourers in the large-scale processing industry.

Women in forestry

Women contribute to both the formal and informal forestry sectors in many significant ways. They play roles in agroforestry, watershed management, tree improvement, and forest protection and conservation. Forests also often represent an important source of employment for women, especially in rural areas. From nurseries to plantations, and from logging to wood processing, women make up a notable proportion of the labour force in forest industries throughout the world. However, although women contribute substantially to the forestry sector, their roles are not fully recognized and documented, their wages are not equal to those of men and their working conditions tend to be poor (World Bank, FAO and IFAD, 2009).

The Global Forest Resources Assessment 2010 reports that the forestry sector worldwide employed approximately 11 million people in 2005; however, sex-disaggregated data on the number of women employed by the sector are not available on a comprehensive basis (FAO, 2010c). Evidence from developing countries suggests that women are often employed in menial jobs in sawmills, plantation nurseries and logging camps (World Bank, FAO and IFAD, 2009). Studies conducted by FAO in Africa and Europe indicate that women do not hold senior or policy-making positions in the sector. Rather, they are primarily employed in administrative and support roles, with professional women foresters tending to have specialist roles (e.g. research) or first-line junior management positions. There is limited information on the numbers and roles of women in contracting or self-employed forestry work (FAO, 2006a, 2007). The studies indicate that even though women are still underrepresented in the industry, examples of good practice are emerging, especially in Europe (FAO, 2006a). This shows that concerted and sustained commitment and planning at senior organizational levels can result in quantifiable improvements in the number of professional women foresters employed and the level of seniority they can attain.

Women in rural labour markets

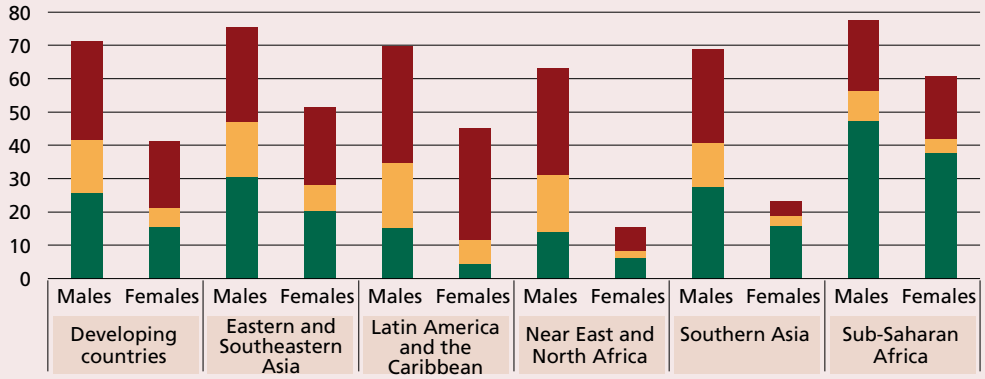
About 70 percent of men and 40 percent of women in developing countries are employed (Figure 4A). Male employment rates range from more than 60 percent in the Near East and North Africa to almost 80 percent in sub-Saharan African. Female employment rates vary more widely across regions, from about 15 percent in the Near East and North Africa to over 60 percent in sub-Saharan Africa.

In Asia and in sub-Saharan Africa, women who are employed are more likely to be employed in agriculture than in other sectors (Figure 4B). Almost 70 percent of employed women in Southern Asia and more than 60 percent of employed women in sub-Saharan Africa work in agriculture. Furthermore, in most developing country regions, women who are employed are just as likely, or even more likely, than men to be in agriculture. The major exception is Latin America, where agriculture provides a relatively small source of female employment and women are less likely than men to work in the sector.

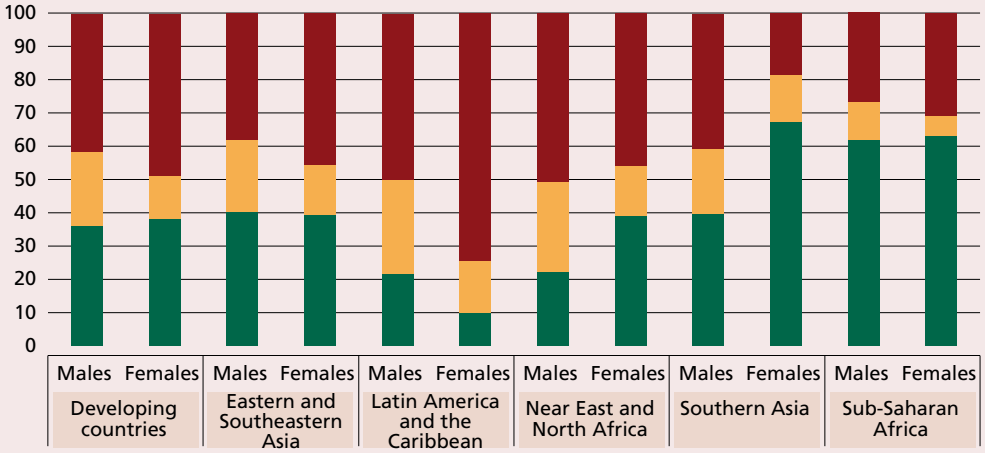
In most developing countries, a relatively small share of the population works for a wage, and women are less likely to do so than men (World Bank, 2007a). For rural areas, data collected by the Rural Income

FIGURE 4
Employment by sector

A - Employed population as a share of total adult population, by sex and sector



B - Distribution of male and female employment, by sector



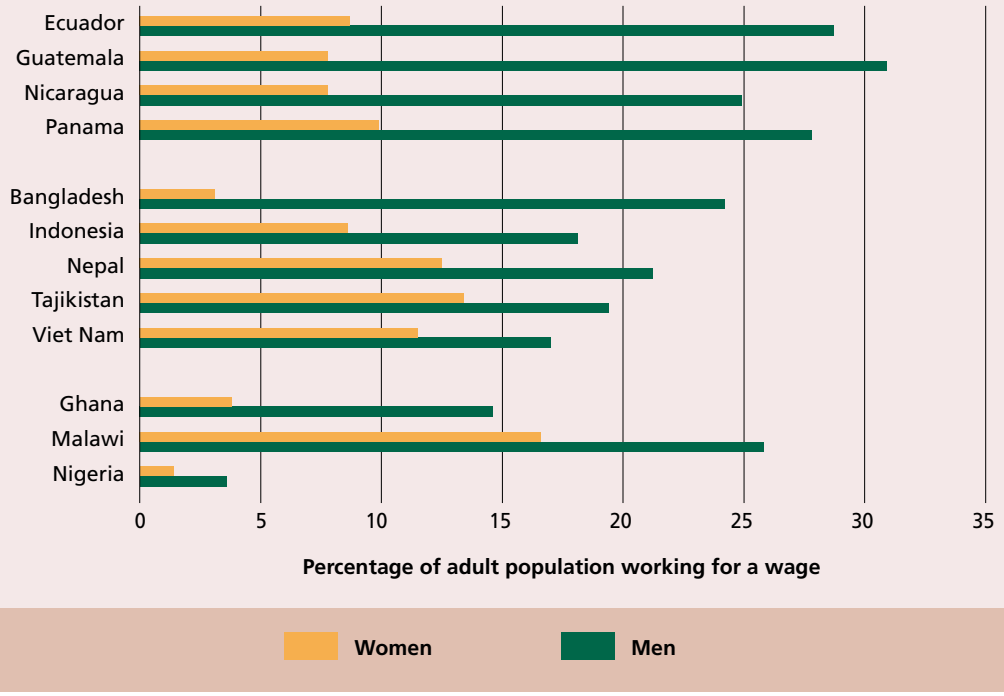
Note: The data cover only a subset of the countries in each region. Definitions of adult labour force differ by country, but usually refer to the population aged 15 and above.
Source: ILO, 2009.

Generating Activities (RIGA) project show that the gender gap in formal and informal wage employment is large (Figure 5).[8]

For example, almost 15 percent of men but fewer than 4 percent of women are employed for wages in Ghana. The gap is even wider in some other countries, such as Bangladesh, where 24 percent of rural men and only 3 percent of rural women work in wage employment. A similar pattern holds in Latin America also; for example, in Ecuador almost 30 percent of rural men and only 9 percent of rural women receive a wage.

[8] Rural Income Generating Activities (RIGA) is a FAO project that has created an internationally comparable database of rural household income sources from existing household living standards surveys for more than 27 countries (FAO, 2010d). Most of the surveys used by the RIGA project were developed by national statistical offices in conjunction the World Bank as part of its Living Standards Measurement Study (LSMS).

FIGURE 5
Participation in rural wage employment, by gender



Source: FAO, 2010d.

Even when rural women are in wage employment, they are more likely to be in part-time, seasonal and/or low-paying jobs. In Malawi, for example, 90 percent of women and 66 percent of men work part-time (Figure 6A). In Nepal, 70 percent of women and 45 percent of men work part-time. This pattern is less pronounced in Latin America than in other regions.

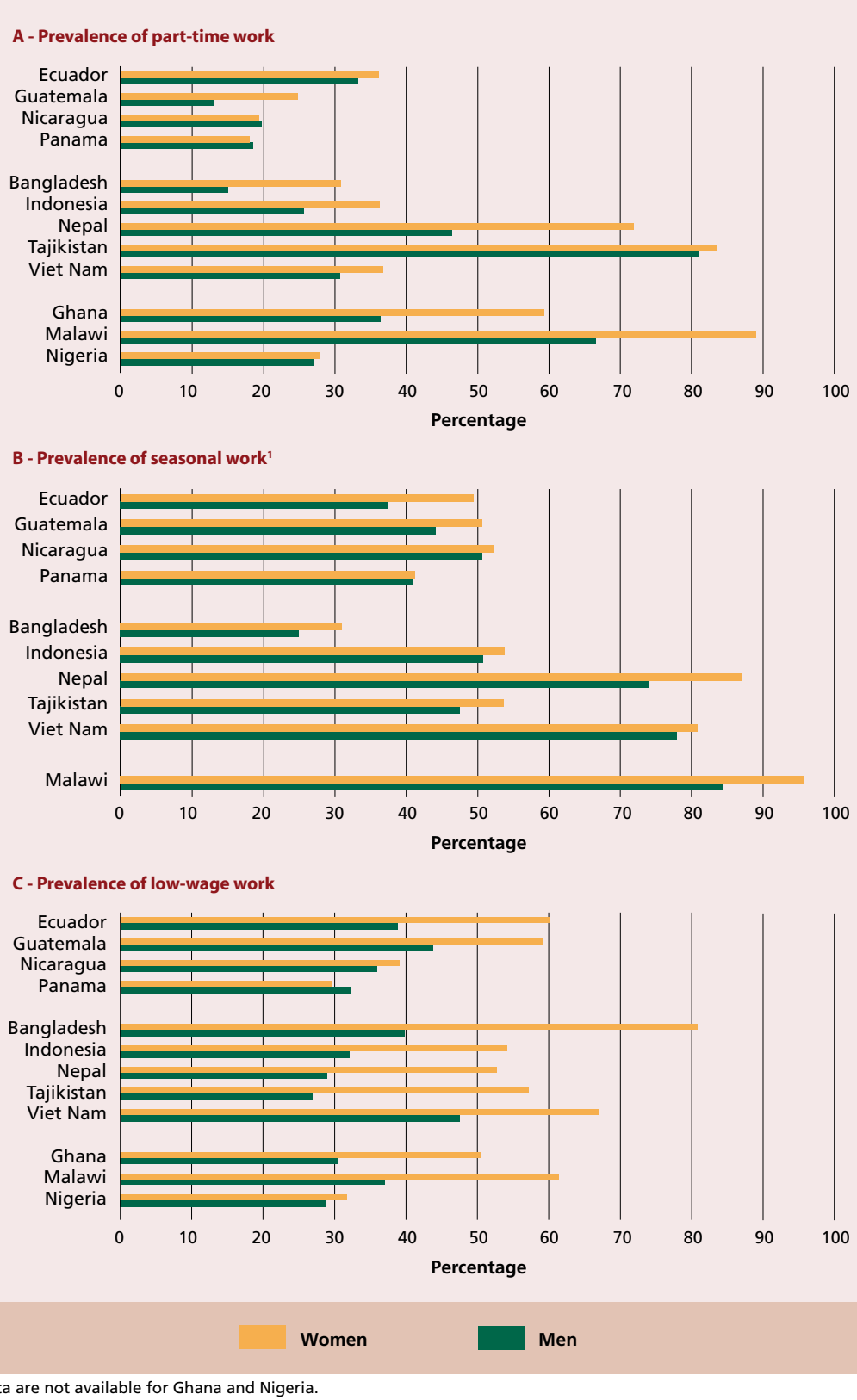
Rural wage employment is characterized by a high prevalence of seasonal jobs for both men and women, but in most countries women are more likely than men to be employed seasonally (Figure 6B). For example, in Ecuador, almost 50 percent of women but fewer than 40 percent of men hold seasonal jobs.

Similarly, rural wage-earning women are more likely than men to hold low-wage jobs (Figure 6C), defined as paying less than the median agricultural wage. In Malawi, more than 60 percent of women are in low-wage jobs compared with fewer than 40 percent of men. The gap is even wider in Bangladesh, where 80 percent of women and 40 percent of men have low-wage jobs. The only exception to this pattern was found in Panama.

Differences in male and female employment and wage patterns may have multiple causes. Because women in many countries have less education and work experience than men, they may earn a lower wage. Furthermore, having less education and experience reduces their bargaining power so they may be more likely to accept low wages and irregular working conditions (Kantor, 2008). Evidence from a number of studies confirms that women, on average, are paid less than men even for equivalent jobs and comparable levels of education and experience (Ahmed and Maitra, 2010; Fontana, 2009). At the same time, because women face significant time constraints because of family obligations, they may prefer part-time or seasonal jobs that are typically lower paid. Social norms that confine women to certain sectors or phases of the supply chain can further limit their opportunities for career growth and reinforce these sectors as low-pay and low-status occupations.

Average male wages are higher than average female wages in rural and urban areas of the countries covered by the RIGA dataset (Figure 7). For example, in

FIGURE 6
Conditions of employment in rural wage employment, by gender



[1]Data are not available for Ghana and Nigeria.
Source: FAO, 2010d.

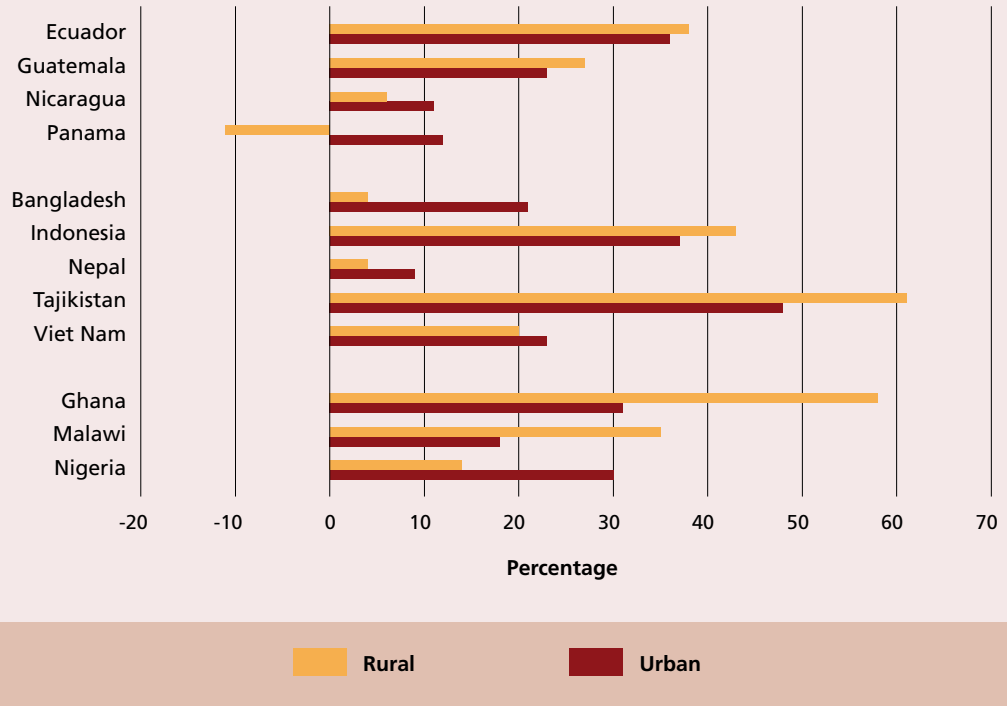
Ghana, men's wages are 31 percent higher than women's wages in urban areas and 58 percent higher in rural areas. Women earn less than men everywhere except in rural areas of Panama. The gap between male and female wages is wider in rural areas in some countries, but not everywhere. Women in most RIGA countries typically earn less than men with the same qualifications, partly as a consequence of occupational segregation and discrimination (Hertz *et al.*, 2009).

While women continue to face occupational segregation and discrimination in rural labour markets, new forms of organization in supply chains for export-oriented crops and agroprocessing have created better-paying employment opportunities for women than had existed before. Wages are typically higher and working conditions better than in traditional agricultural employment. The large-scale incorporation of women in the packing stage of non-traditional agro-export production may be one of the most important developments for female employment over the past few decades (Deere, 2005).

Women are clearly an important part of the agricultural labour force, but agriculture and agricultural value chains are equally important to women as a source of employment. Commercial value chains for high-value products such as fresh fruit, vegetables, flowers and livestock products are growing rapidly to supply urban supermarkets and export markets. The growth of modern value chains and the broader structural transformation of the agriculture sector in many developing countries have major implications for women's employment, but the impact of these trends for women has received relatively little analytical attention (Maertens and Swinnen, 2009).

Women dominate employment in many of the high-value agricultural commodity chains in Africa and Latin America (Table 1). Although new jobs in export-oriented agro-industries may not employ men and women

FIGURE 7
Wage gap between men and women in urban and rural areas



Note: The wage gap is calculated as the difference between average daily male and female wages as a percentage of the average male wage. A positive wage gap means men are paid more than women. The rural wage gap includes farm and non-farm employment.

Source: Hertz *et al.* 2009.

TABLE 1
Employment in selected high-value agro-industries

COUNTRY	COMMODITY	YEAR OF SURVEY	NUMBER OF EMPLOYEES IN THE AGRO-INDUSTRY	SHARE OF FEMALE EMPLOYEES (%)
Cameroon	Banana	2003	10 000	..
Côte d'Ivoire	Banana and pineapple	2002	35 000	..
Kenya	Flowers	2002	40 000–70 000	75
Senegal	French beans Cherry tomatoes	2005 2006	12 000 3 000	90 60
Uganda	Flowers	1998	3 300	75
South Africa	Deciduous fruit	1994	283 000	53
Zambia	Vegetables Flowers	2002/3 2002/3	7 500 2 500	65 35
Chile	Fruits	1990s	300 000	circa 46
Colombia	Flowers	mid-90s	75 000	60–80
Dominican Republic	Fruits, vegetables, flowers, plants	1989–90	16 955	circa 41
Mexico	Vegetables	1990s	950 000	90

Sources: For Africa: Maertens and Swinnen, 2009, Table 1, based on several sources; for South America: Deere, 2005, Appendix II, based on several sources.

on equal terms, they often provide better opportunities for women than exist within the confines of traditional agriculture and can also be instruments of change with positive implications for women and rural development (Maertens and Swinnen, 2009; Deere, 2005).

The flower industry in Latin America provides an interesting case of contrasting points of view. In Colombia, for example, Friedemann-Sanchez (2006) finds that 64 percent of the workforce directly growing fresh-cut flowers for export are women and considers this type of agro-industrial work skilled, while others consider it unskilled (e.g. Meier, 1999). While women do have supervisory jobs among those directly involved in cultivation activities, they have a much lower share of managerial or professional jobs in other aspects of the sector (Friedemann-Sanchez, 2006). Similarly, Fontana (2003) finds that in sectors producing primarily for the export market, women tend to be replaced by males as profits increase.

The arrival of the flower industry in the Ecuadorian town of Cayambe in the late 1980s (in combination with other household and individual factors) affected time-use patterns in some surprising ways (Newman, 2002). The total time spent by women in paid and unpaid work did not increase, contrary to a frequent criticism of agricultural export development that maintains that women are unduly burdened by work in the industry. Indeed, the most compelling evidence of the industry's impact was on men's increased participation in housework. In Cotocachi, Ecuador, in contrast, women were not prepared to move or even commute to work in the flower industry despite the higher wages offered there. The women did not view flower industry employment as an option, indicating either that their husbands would not allow them to work or that the work would be detrimental to family relations (Newman, 2002).

In Senegal, the growth of modern horticulture supply chains has been associated with direct beneficial effects for rural women and reduced gender inequalities in rural areas (Maertens and Swinnen, 2009). The study also finds that women benefit more from employment in large-scale estate production and agro-industrial processing than from high-value smallholder contract-farming in which they often provide unpaid family labour.

Key messages

- Women comprise 43 percent of the agricultural labour force in developing countries, on average, ranging from about 20 percent in Latin America to almost 50 percent in Eastern and Southeastern Asia and sub-Saharan Africa. The share is higher in some countries and is changing rapidly in some parts of the world.
- Agriculture is the most important source of employment for women in rural areas in most developing country regions, but this varies widely by region. Women are more likely than men to hold low-wage, part-time, seasonal employment and they tend to be paid less even when their qualifications are higher than men's, but new jobs in high-value, export-oriented agro-industries offer much better opportunities for women than traditional agricultural work.

3. Documenting the gender gap in agriculture[9]

Access to productive resources such as land, modern inputs, technology, education and financial services is a critical determinant of agricultural productivity. Agriculture is important to women, but female farmers (Box 4) have less access to the productive resources and services required by agricultural producers. Women are less likely than men to own land or livestock, adopt new technologies, use credit or other financial services, or receive education or extension advice. In some cases, women do not even control the use of their own time.

While the size of the gender gap differs by resource and location, the underlying causes for the gender asset gap are repeated across regions: social norms systematically limit the options available to women. Regardless of cause or magnitude, however, the gender asset gap reduces the agricultural productivity of women and thus involves broader economic and social costs.

Land

Land is the most important household asset for households that depend on agriculture for their livelihoods. Access to land is a basic requirement for farming and control over land is synonymous with wealth, status and power in many areas. Strengthening women's access to, and control over, land is an important means of raising their status and influence within households and communities. Improving women's access to land and security of tenure has direct impacts on farm productivity, and can also have far-reaching implications for improving household welfare. Strengthening land ownership by women in Nepal, for example, is linked with better health outcomes for children (Allendorf, 2007).

The evidence illustrating gender inequalities in access to land is overwhelming. Women across all developing regions are consistently less likely to own or operate land; they are less likely to have access to rented land, and the land they do have access to is often of poorer quality and in smaller plots.

The most comprehensive data on women's access to land come from the FAO Gender and Land Rights Database (FAO, 2010f), and were collected from different data sources, including household surveys, agricultural censuses and the academic literature. The database provides information on the shares of "agricultural holders" who are male and female. An agricultural holder is defined as the person or group of persons who exercise management control over an agricultural holding. The holding may be owned, rented or allocated from common property resources and may be operated on a share-cropped basis.

Stark gender disparities in land holdings are apparent in all regions (Figure 8). Women represent fewer than 5 percent of all agricultural holders in the countries in North Africa and West Asia for which data are available. The sub-Saharan African average of 15 percent masks wide variations, from fewer than 5 percent in Mali to over 30 percent in countries such as Botswana, Cape Verde and Malawi. Latin America has the highest regional average share of female agricultural holders, which exceeds 25 percent in Chile, Ecuador and Panama.

In addition to being more likely to hold land, men also typically control larger land holdings than women. Representative and comparable data for 20 countries from the RIGA database of household surveys show that male-headed households operate larger agricultural land holdings, on average, than female-headed households in all countries (Figure 9). Inequality in access to land is more acute in Bangladesh, Ecuador and Pakistan, where average land holdings of male-headed households are more than twice the size of

[9] The material in this chapter is based on FAO (2010e).

BOX 4
Female farmers, household heads and data limitations

Data on female farmers are limited. Most women engaged in farming do so within a household production unit, and their activities are not usually separable from those of the household as a whole. Most of the data available on female farmers derives from household surveys and pertains to the activities of female-headed households, who comprise a minority of female farmers in most countries. Some data are available for female-operated plots within male-headed households, primarily in Africa where men and women often operate separate plots. The unit of observation used in this chapter (individuals, households, farms or plots) varies depending on the resource being discussed and the availability of data.

The prevalence of female-headed households is generally higher in sub-Saharan Africa than in other regions (Annex table A5), but this hides considerable variation within the region. In fact, the countries having the highest (Swaziland) and the lowest (Burkina Faso) prevalence of female-headed households in developing regions are both found in sub-Saharan Africa.

A distinction should be made between two types of female-headed households: (i) *de facto*, i.e. those in which an adult male partner is working away from the household but remains involved through remittances and other economic and social ties and (ii) *de jure*, i.e. those which have no male partner, such as women who are widowed, divorced or never married. Comprehensive data are not usually available to distinguish between these types of households, but for the few cases for which we have data most female-headed households are *de jure*. In Malawi, Panama and Uganda about 70, 63 and 83 percent, respectively, of all female-headed households are *de jure* (Chipande, 1987; Appleton, 1996; and Fuwa, 2000). Also in Cambodia and the Lao People's Democratic Republic, most are *de jure* (FAO/GSO/MoP, 2010, and FAO/MAF, 2010). Studies that are able to disaggregate by type of female-headed household mostly find that *de jure* households are more likely to suffer from a range of economic and social disadvantages (Seebens, 2010).

those of female-headed households. The RIGA results confirm the findings of studies in Latin America (Deere and León, 2003) and Africa (FAO, 1997) showing that male-controlled land holdings are generally larger than female-controlled holdings.

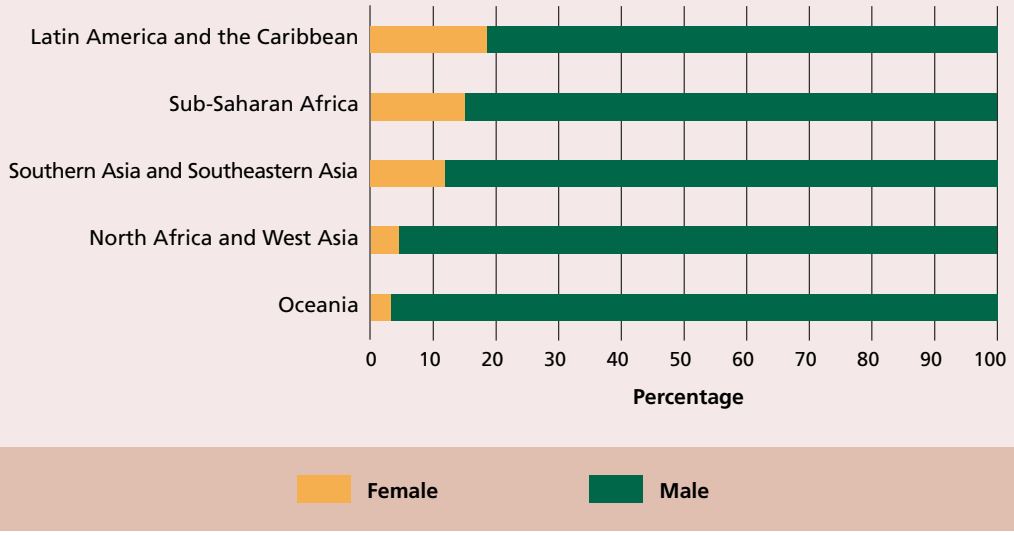
Livestock

Livestock is another key asset in rural areas (FAO, 2009a). In many countries, livestock is one of the most valuable agricultural assets and represents a source of income and wealth accumulation as well as an important source of resistance to shocks. Draught animals are also the main source of power for ploughing, land clearing and transportation in many regions.

As was the case for access to land, the evidence for livestock holdings points to systematic gender inequalities. Male-headed households have larger livestock holdings, on average, than female-headed households (Figure 10). Inequality in livestock holdings appears to be particularly acute in Bangladesh, Ghana and Nigeria, where male holdings are more than three times larger than those of female-headed households. In Indonesia and Pakistan, for which the RIGA database contains information on incomes from livestock but not livestock holdings, net incomes from livestock are significantly higher in male-headed households than in female-headed households.

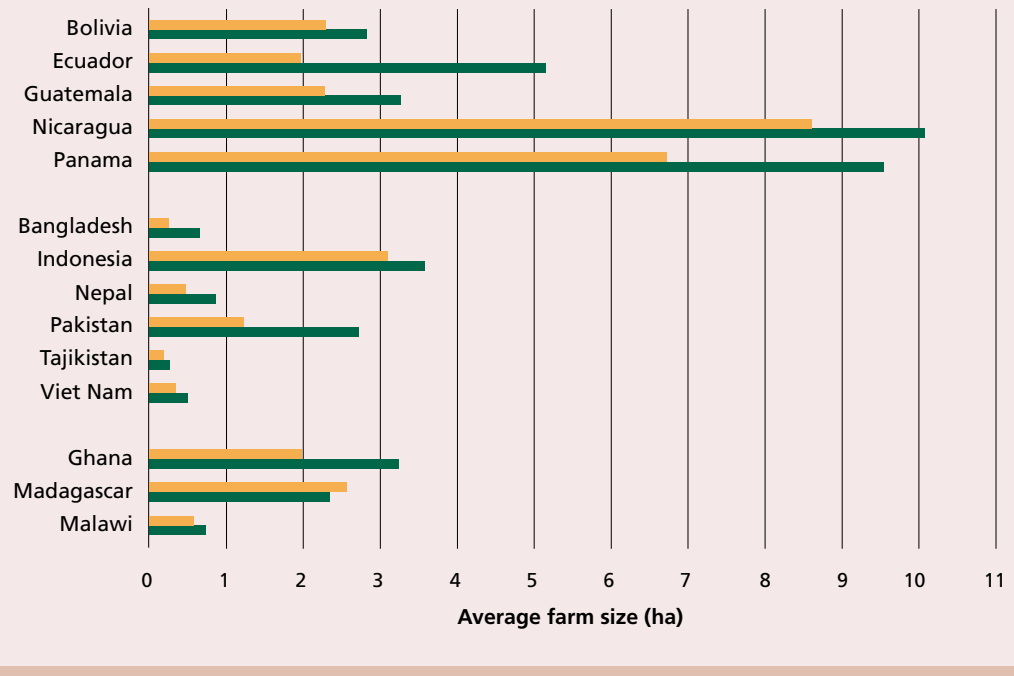
The RIGA database provides information by household according to the sex of the household head, so data do not reflect intra-household differences in control over livestock. These vary by culture and context but, in general, men are responsible for keeping and marketing large animals, such

FIGURE 8
Share of male and female agricultural holders in main developing regions



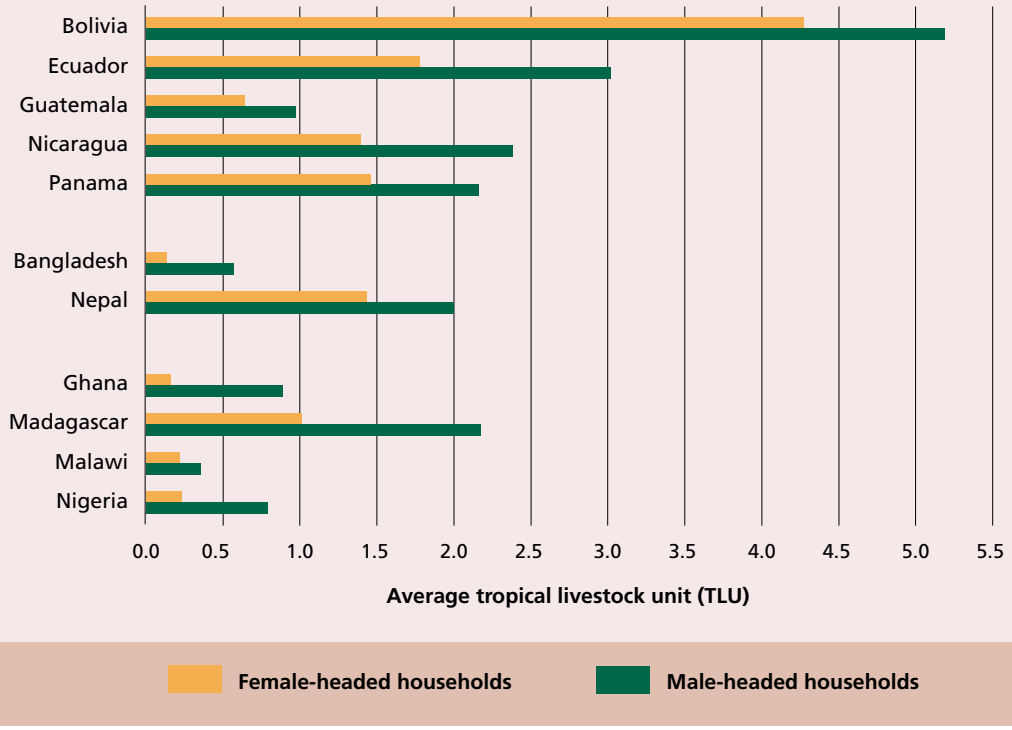
Note: Regional aggregates do not include all countries due to lack of data. Country-level data are provided in Annex table A5.
Source: FAO, 2010f.

FIGURE 9
Rural household assets: farm size



Note: Differences between male and female-headed households are statistically significant at the 95 percent confidence level for all countries, except for Bolivia, Indonesia, Madagascar, Nicaragua and Tajikistan.
Sources: FAO, 2010d, and Anríquez, 2010.

FIGURE 10
Household livestock assets, in male- and female-headed households



Notes: Calculations made using nationally representative household surveys. The number of livestock is computed using the tropical livestock unit (TLU), which is equivalent to a 250 kg animal. The scale varies by region. For example, in South America, the scale is: 1 bovine = 0.7 TLU, 1 pig = 0.2, 1 sheep = 0.1 and 1 chicken = 0.01. Differences between male- and female-headed households are statistically significant at the 95 percent confidence level for all countries except for Guatemala.

Sources: FAO, RIGA team, and Anríquez, 2010.

as cattle, horses and camels, while women tend to control smaller animals, such as goats, sheep, pigs and poultry (FAO, 2009a). In Nicaragua, for example, women own around 10 percent of work animals and cattle but 55–65 percent of pigs and poultry (Deere, Alvarado and Twyman, 2009). Even when women jointly own large animals, they do not necessarily have access to the services they provide, as was found for Indian women and the use of oxen (Chen, 2000).

The RIGA data measure livestock in physical terms – tropical livestock units – but the results are consistent with other studies that evaluate the value of livestock holdings. Data from northern Nigeria, for example, indicate that the value of men's livestock holdings is about twice that of women's (Dillon and Quiñones, 2010). The same study finds that men and women use livestock differently as a store of wealth and as a buffer against shocks. Men are more likely to hold assets in the form of large animals such as cows and bulls while women are more likely to hold assets in the form of small animals, household durable goods and jewellery. Women tend to draw down assets more quickly than men in response to crises and as they get older (Dillon and Quiñones, 2010).

Farm labour

Labour availability depends on the amount of family labour that a household can mobilize and the amount of labour that can be hired in local labour markets. Labour constraints can be more acute for both women and female-headed households than for men and male-headed households for several reasons. Women generally face gender-specific constraints as agricultural labourers and in hiring-in labour. Low levels of human capital – education, health and

nutrition – are a constraint on women's labour productivity in agriculture and other sectors (Behrman, Alderman and Hoddinott, 2004) (Box 5). Some nutrition issues, such as iron deficiency, which directly affects labour productivity and is widespread, are especially relevant to women (Quisumbing and Pandolfelli, 2010). Often there is a pronounced gender division of labour for particular agricultural tasks, with the result that male and female labour cannot be easily substituted. Moreover, women are time-constrained by domestic tasks such as care-giving and collecting firewood and water (McGuire and Popkin, 1970; Quisumbing and Pandolfelli, 2010).

Female-headed households face more severe labour constraints than male-headed households because they typically have fewer members but more dependants. In some areas, male out-migration adds to the constraint already imposed by gender-specific farming tasks (Peters, 1986). Female-headed households may receive help from male relatives, but only after the men have taken care of their own plots. The fact that female-headed households typically farm smaller plots may not compensate for the lower availability of family labour. For example, among small-scale maize farmers in Malawi, females own less land but still use about 10 percent less total labour per hectare than their male counterparts and much of that labour is supplied by children, who must work to make up the shortfall caused by their mothers' other duties (Takane, 2008).

Household and community responsibilities and gender-specific labour requirements mean that women farmers cannot farm as productively as men and make it more difficult for them to respond when crop prices rise. Depending on cultural norms, some farming activities, such as ploughing and spraying, rely on access to male labour without which women farmers face delays that may lead to losses in output. For example, women maize farmers in Malawi require male labour for ploughing, but female-headed households often lack male family members who can do the work and they may not have the cash needed to hire

BOX 5
Labour productivity and hunger, nutrition and health

Hunger, nutrition and health are strong determining factors on a person's ability to work, their productivity and their cognitive development. With regard to nutrition, only 37 developing countries collect data on chronic energy deficiency (CED) for both men and women (Annex table A6) (WHO, 2010). In 17 countries the difference between the share of men and women with CED is one or less percentage points. Of the remaining 20 countries, 13 show a higher share of women with CED. Based on these few observations, it appears that in sub-Saharan Africa women are less likely than men to suffer CED while in South America and Asia, particularly Southeastern Asia, women are more likely than men to suffer from CED. The reported data for adults are consistent with that available for underweight children (under 5 years of age). For example, in Asia and the Pacific, a larger share of girls than boys are underweight, whereas the opposite is true in sub-Saharan Africa.

While in some locations women are disadvantaged with regard to hunger and nutrition, this is not generally the case. However, there are certain health and nutritional issues that are sex-specific. For example, women's energy and nutritional needs increase during menstruation, pregnancy and lactation and their nutritional status has an impact on their offspring. There is also evidence that women have higher morbidity than men – not only because they live longer – and that they are less likely to access health services (Buvinic *et al.*, 2006). Thus, gender differences in nutrition and health could have important policy implications for society.

Policy interventions that address the specific health and nutrition issues of women are important, but their nature and scope should always reflect the specific context and location.

male labour. As a result, women cultivate smaller plots and achieve lower yields (Gilbert, Sakala and Benson, 2002). This web of constraints means that women in Malawi have difficulty growing cash crops such as tobacco or improved maize that require purchased inputs, because they cannot generate the income necessary to obtain credit and guarantee repayment. Such labour constraints in some cases may prevent female-headed households from even applying for credit (Chipande, 1987). Female-headed households in Ethiopia, where cultural norms require that ploughing be undertaken by men, also achieve lower yields because they have limited access to male labour (Holden, Shiferaw and Pender, 2001).

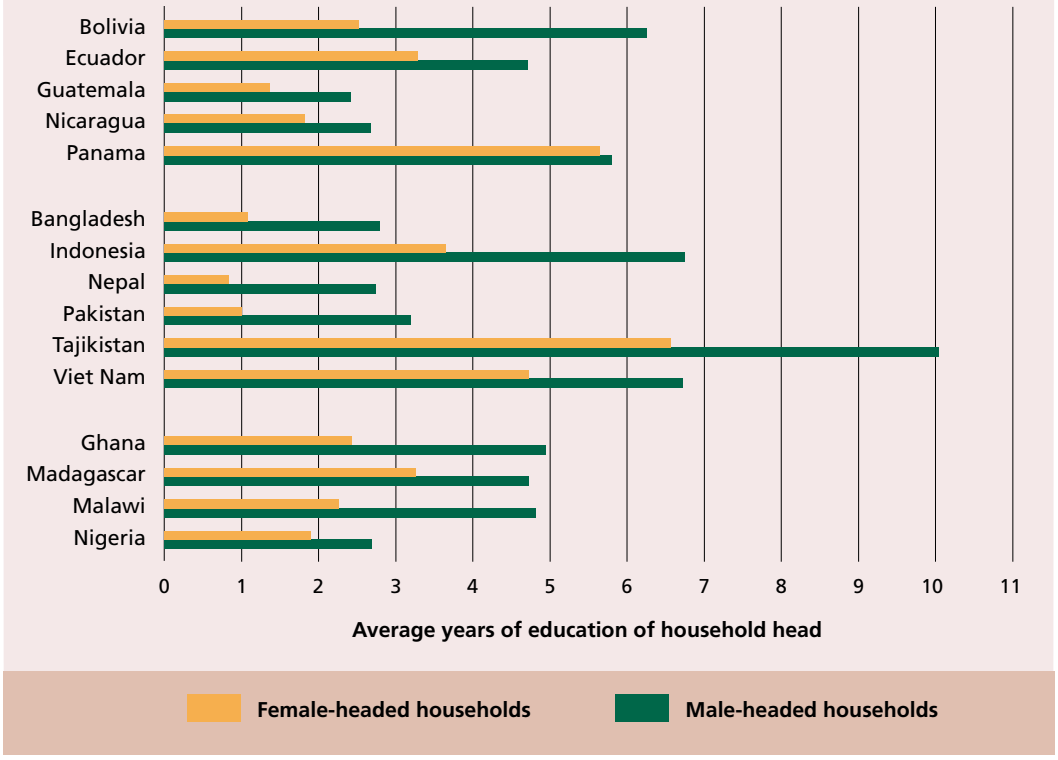
Education

Human capital is a major factor in determining the opportunities available to individuals in society and is closely linked to the productive capacity of households and their economic and social well-being. The level of human capital available in a household (usually measured as the education of the head of household or the average education of working-age adults in the household) is strongly correlated with measures such as agricultural productivity, household income and nutritional outcomes – all of which ultimately affect household welfare and economic growth at the national level (World Bank, 2007a).

Gender differences in education are significant and widespread (Figure 11). Female heads have less education than their male counterparts in all countries in the sample except Panama, where the difference is not statistically significant. The data suggest that female household heads in rural areas are disadvantaged with respect to human capital accumulation in most developing countries, regardless of region or level of economic development.

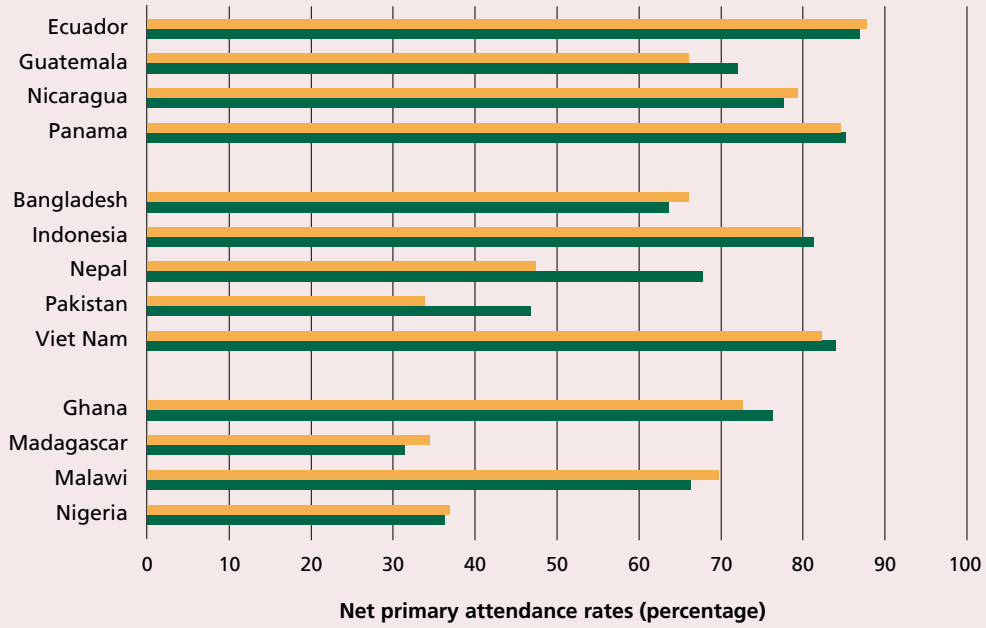
This evidence reflects a history of bias against girls in education. Despite this bias, human capital accumulation is one asset category for which the gender gap has clearly narrowed in recent decades. Although

FIGURE 11
Education of male and female rural household heads



Sources: FAO, 2010d, and Anríquez, 2010.

FIGURE 12
Gender differences in rural primary education attendance rates



Note: Attendance rates are defined as the number of children in primary school age who attend primary school, expressed as a percentage of the total number of children in official primary school age. Only Ghana, Guatemala, Nepal and Pakistan are statistically significantly different from 0 at the 95 percent level.
Source: FAO, RIGA team.

progress has been uneven across regions and important gaps persist, significant gains have been made in primary school enrolment rates for girls, and difference between boys and girls has narrowed. Of the 106 countries committed to MDG 3 on gender parity in access to education, 83 had met the target by 2005 (World Bank, 2007b). Most of the countries in the RIGA database have achieved gender parity in primary school attendance (defined as no statistically significant difference between male and female attendance rates) (Figure 12). One of the most significant advances for women in Latin America has been in the area of primary and secondary education, yet a significant gender gap persists among indigenous groups in many Latin American countries. The education gender gap – both in levels of enrolment and attainment – remains widest in Southern Asia and sub-Saharan Africa.

Beyond general educational attainment, higher education for women in agricultural science and technology is particularly relevant in regions where women comprise a large part of the agriculture sector. The number of women working in science and technology research in industrialized and developing countries has increased substantially in recent decades, but remains low in most countries. There is an urgent need for a greater representation of women in agricultural research, particularly in sub-Saharan Africa, where women participate heavily in the agricultural workforce. Women scientists, research managers, lecturers and professors can provide different insights and perspectives and help research agencies to address more effectively the unique and pressing challenges that African farmers face. They may also serve as role models to students and other women in agriculture. Significant progress has been made in increasing the share of female professional staff in agricultural higher education and research institutions in Africa (Box 6).

BOX 6

Women in agricultural higher education and research in Africa[1]

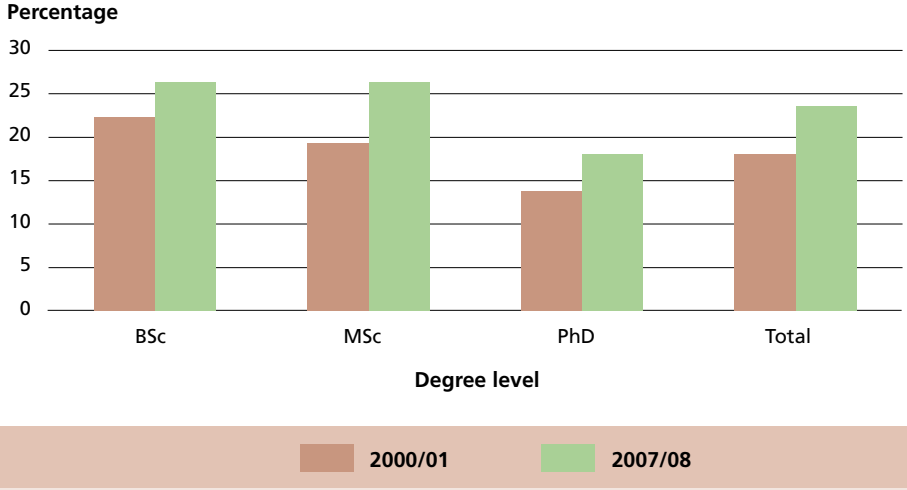
During 2008, the Agricultural Science and Technology Indicators (ASTI) and the African Woman in Agricultural Research and Development (AWARD) programmes conducted a survey to obtain sex-disaggregated capacity indicators covering 125 agricultural research and higher education agencies in 15 sub-Saharan African countries.[2] The study found that the pool of female professional staff increased by 50 percent between 2000/01 and 2007/08 and 4 (Botswana, Nigeria, Senegal, and Zambia) of the 15 countries saw their female staff double. In relative terms, the share of women in total professional staff increased from 18 percent to 24 percent over the period. This increase occurred across all three degree levels (BSc, MSc, and PhD), but varied considerably across the 15 countries (Figures A and B). Female participation in agricultural research and higher education was particularly high in South Africa (41 percent), Mozambique (35 percent) and Botswana (32 percent). In contrast, only a small proportion of the agricultural professional staff were women in Ethiopia (6 percent), Togo (9 percent), the Niger (10 percent) and Burkina Faso (12 percent). Compared with other countries in the region, female professional staff members were relatively more educated in Kenya, Nigeria, South Africa and Uganda, where more than one-quarter of the total held PhD degrees.

Future trends in female participation in agricultural research will be influenced by current student enrolment and graduation levels. An increasing number of women have been enrolling in higher education, not only in sub-Saharan Africa, but also in other regions in the world (UIS, 2006; UNESCO, 2004). This also appears to be the case in agricultural sciences, but unfortunately no sex-disaggregated trend data are available. Most female students in agricultural sciences, however, are enrolled in BSc programmes. This is also true for male students and reflects the reality that many agricultural faculties and schools in sub-Saharan Africa have only small MSc and PhD programmes.

The growing shares of professional women employed in agriculture and female students enrolled in agricultural

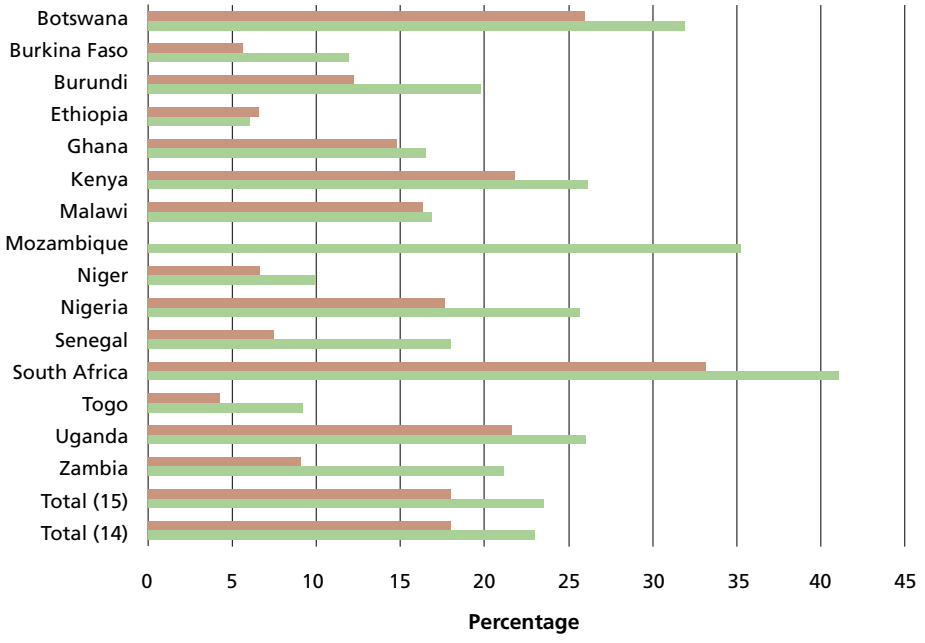
FIGURE A

Change in average female shares in professional staff of agricultural and higher education institutions in 14 African countries, by degree level, 2000/01 to 2007/08



Note: Excludes Mozambique owing to lack of available data for 2000/01.
Source: Beintema and Di Marcantonio, 2009, based on ASTI datasets.

FIGURE B
Change in female shares in professional staff, by headcount, 2000/01 to 2007/08



Note: Excludes Mozambique owing to lack of available data for 2000/01.
Source: Beintema and Di Marcantonio, 2009, based on ASTI datasets.

sciences indicate that the gender gap in African agricultural sciences may be narrowing, especially in southern Africa. But the increase in the number of women, as well as men, that enter African agricultural research and higher education are mostly young staff with lower level of degrees and at the beginning of the career ladder. On average, more than half of the female professional staff in the 15-country sample were younger than 41 years compared with 42 percent of the total male professional staff. On average, 31 percent of total female staff and 27 percent of total male staff held BSc degrees. These 15-country averages, again, mask a wide variation across countries (see Beintema and Di Marcantonio, 2009).

The share of women disproportionately declines on the higher rungs of the career ladder. Only 14 percent of management positions were held by women, which is considerably lower than the overall share of female professional staff employed in agriculture. Women are, therefore, less represented in high-level research, management and decision-making positions compared with their male colleagues.

[1] This section was prepared by Nienke Beintema and is based on Agricultural Science and Technology Indicators (ASTI) datasets (www.asti.cgiar.org), Beintema (2006), and Beintema and Di Marcantonio (2009). ASTI is managed by the International Food Policy Research Institute (IFPRI); AWARD is managed by the Consultative Group on International Agricultural Research (CGIAR) Gender and Diversity (G&D) Program.

[2] Botswana, Burkina Faso, Burundi, Ethiopia, Ghana, Kenya, Malawi, Mozambique, the Niger, Nigeria, Senegal, South Africa, Togo, Uganda and Zambia.

Information and extension

Good and timely information on new technologies and techniques is essential for farmers when deciding whether or not to adopt an innovation. Although private extension services are playing an increasing role in some countries, such as Brazil, China and India, public extension services remain the key source of information on new technologies for farmers in most developing countries. Extension services encompass the wide range of services provided by experts in the areas of agriculture, agribusiness, health and others and are designed to improve productivity and the overall well-being of rural populations. The provision of agricultural extension can lead to significant yield increases. Yet, extension provision in developing economies remains low for both women and men, and women tend to make less use than men of extension services (Meinzen-Dick *et al*., 2010). According to a 1988–89 FAO survey of extension organizations covering 97 countries with sex-disaggregated data (the most comprehensive study available) only 5 percent of all extension resources were directed at women. Moreover, only 15 percent of the extension personnel were female (FAO, 1993).

In social contexts where meetings between women and men from outside the family nucleus are restricted, a lack of female extension agents effectively bars women from participating. The preference for female extension agents varies by country and marital status. In Ghana, for example, male and female farmers in male-headed households have equal contact with extension agents but female farmers in female-headed households have much less contact, although they are willing to speak to agents of either sex (Doss and Morris, 2001). In the United Republic of Tanzania, on the other hand, many female farmers prefer to talk to a female extension officer and, by 1997, one-third of extension officers were women, up from almost none 15 years prior (Due, Magayane and Temu, 1997).

However, even when women have access to extension services, the benefits may not be obvious. In Kenya, contact with the extension agent contributed significantly and positively to output on male-managed plots, but not necessarily on female-managed plots (Saito, Mekonnen and Spurling, 1994). Extension service agents tend to approach male farmers more often than female farmers because of the general misperception that women do not farm and that extension advice will eventually "trickle down" from the male household head to all other household members. Extension services are often directed towards farmers who are more likely to adopt modern innovations, for example farmers with sufficient resources in well-established areas. As discussed above, women are less likely to access resources and may therefore be bypassed by extension service providers (Meinzen-Dick *et al*., 2010).

Finally, the way in which extension services are delivered can constrain women farmers in receiving information on innovations. Women tend to have lower levels of education than men, which may limit their active participation in training that uses a lot of written material. Time constraints and cultural reservations may hinder women from participating in extension activities, such as field days, outside their village or within mixed groups (Meinzen-Dick *et al*. 2010).

Several new and participatory extension approaches have been developed and tested in the past decade in an effort to move away from a top-down model of extension service provision to more farmer-driven services. These approaches can target women effectively and increase their uptake of innovations (Davis *et al*., 2009) and will be discussed in Chapter 5. Participatory approaches that encourage communication between farmers and researchers can also lead to positive feedback loops that allow researchers to adjust innovations to local needs.

Modern information and communication technologies (ICTs) such as radio, mobile phones, computers and Internet services can also play an important role in transferring information. ICTs offer opportunities for accessing and sharing information faster, networking, the mobilization of resources and educational purposes. Mobile phone subscriptions in developing countries have doubled since 2005. To date, 57 out of 100 inhabitants (up from 23 in 2005) in developing countries have a mobile phone subscription (ITU, 2010). These technologies may be beneficial for rural women whose ability to travel to distant markets is restricted.

Rural women may face barriers in accessing ICTs because of their limited education and financial and time constraints. Locations that are convenient and appropriate for women to visit can help improve women's access (Best and Maier, 2007).

Financial services

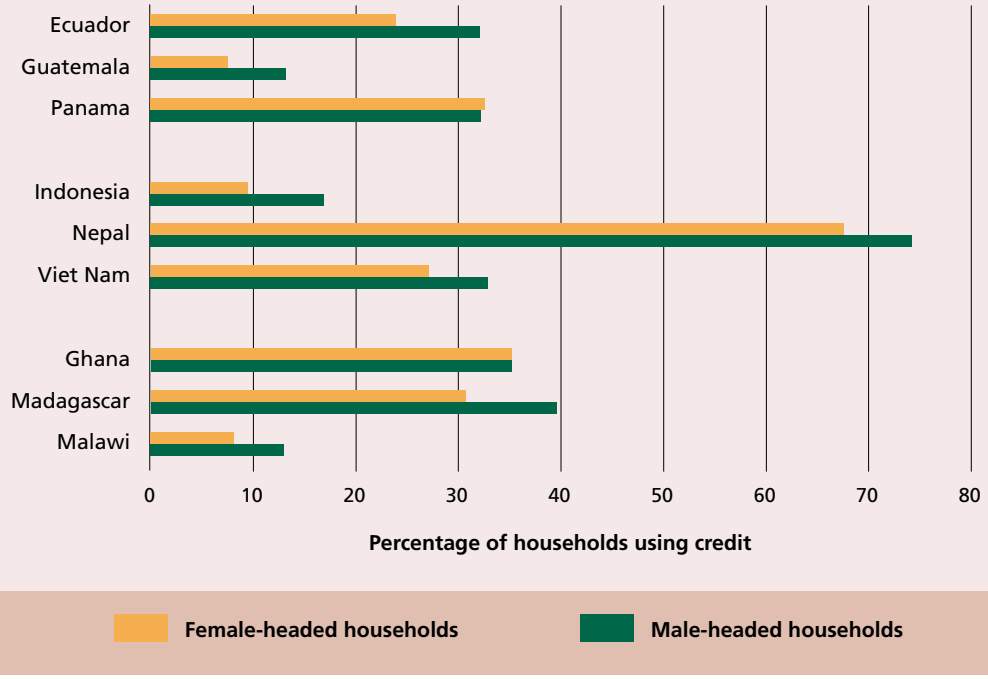
Financial services such as savings, credit and insurance provide opportunities for improving agricultural output, food security and economic vitality at the household, community and national levels. Many studies have shown that improving women's direct access to financial resources leads to higher investments in human capital in the form of children's health, nutrition and education.

Producers who are unable to cover their short-term expenses or who want to purchase more productive but more expensive technologies must rely on either credit markets or other credit sources. Without access to credit, producers may be unable to bear the risks and up-front costs associated with the innovations and investment necessary to enhance their productivity, income and well-being.

Evidence shows that credit markets are not gender-neutral. Legal barriers and cultural norms sometimes bar women from holding bank accounts or entering into financial contracts in their own right. Women generally have less control over the types of fixed assets that are usually necessary as collateral for loans. Institutional discrimination by private and public lending institutions often either ration women out of the market or grant women loans that are smaller than those granted to men for similar activities (Fletschner, 2009; World Bank, FAO and IFAD, 2009).

In seven out of nine countries in the RIGA dataset, rural female-headed households are less likely than male-headed households to use credit (Figure 13). In Madagascar, for example, the share of female-headed households that use credit is 9 percentage points smaller than the share of male-headed households who do so. The cases of Ghana and Panama are noteworthy in that no gender gap is apparent in the use of credit.

FIGURE 13
Credit use by female- and male-headed households in rural areas



Note: Calculations made using nationally representative household surveys. The gender gap is calculated as the difference between the percentages of male- and female-headed households that use credit.

Sources: FAO, RIGA team, and Anríquez, 2010.

The gender gap in access to credit is also confirmed by other evidence. In Nigeria, for example, 14 percent of males but only 5 percent of females obtain formal credit, while in Kenya the percentages are 14 and 4 for males and females, respectively (Saito, Mekonnen and Spurling, 1994). In Uganda, women entrepreneurs receive just 1 percent of available credit in rural areas (Dolan, 2004). Also in Uganda, nearly all female-headed households reported a desire to expand agricultural activities but lacked the money to purchase land and inputs such as seeds, fertilizer and pesticides, and/or to hire-in labour. They cited the lack of access to credit as one of the most prominent barriers to livelihood diversification (Ellis, Manuel and Blackden, 2006).

In Bangladesh, women received about 5 percent of loans disbursed by financial institutions to rural areas in 1980 and only slightly more than 5 percent in 1990, despite the emergence of special credit programmes for women in Bangladesh during the research period (Goetz and Gupta 1996). Further evidence from Bangladesh suggests that even when programmes succeed in improving the access of women to credit, they may not retain control over the assets: White (1991) found that about 50 percent of loans taken by women were used for men's productive activities; Goetz and Gupta (1996) reported that, on average, women retained full or significant control over loan use in only 37 percent of all cases; while Chowdhury (2009) reported that credit to women from the Grameen Bank was positively and significantly correlated with the performance of male-managed micro-enterprises but not those managed by females.

In Eastern Asia, the evidence regarding bias in credit access is mixed. In China, de Brauw *et al*. (2008) found that households in which women manage their own farms appear to have almost identical access to land and credit relative to male-headed households. On the other hand, a joint study by FAO and the United Nations Development Programme (FAO/UNDP, 2002) carried out in Viet Nam indicates that female-headed households borrow less, have less access to formal credit and pay higher interest on loans than dual-headed households.

For Latin America, Fletschner (2009) reports that in Paraguay women in farm households typically receive loans only from credit cooperatives as opposed to the state banks or wholesalers. Her findings show that women are less likely to use credit than men under equivalent socio-economic conditions and that they are not always able to rely on their husbands to help them overcome credit constraints. These constraints on women's access to capital have a measurable negative impact on their production capabilities. For example, in addition to the efficiency loss associated with the husband's credit constraints, when women are unable to meet their credit needs their households experience an additional 11 percent drop in efficiency (Fletschner, 2008).

Technology

Access to new technology is crucial in maintaining and improving agricultural productivity. Gender gaps exist for a wide range of agricultural technologies, including machines and tools, improved plant varieties and animal breeds, fertilizers, pest control measures and management techniques. A number of constraints, including the gender gaps described above, lead to gender inequalities in access to and adoption of new technologies, as well as in the use of purchased inputs and existing technologies.

The use of purchased inputs depends on the availability of complementary assets such as land, credit, education and labour, all of which tend to be more constrained for female-headed households than for male-headed households. The adoption of improved technologies is positively correlated with education but is also dependent on time constraints (Blackden *et al*., 2006). In an activity with long turnaround periods, such as agriculture, working capital is required for purchasing inputs such as fertilizers and improved seeds; however, as discussed above, women face more obstacles relative to men in their access to credit. Adoption of improved technologies and inputs may also be constrained by women's lower ability to absorb risk.

The evidence points to significant gender differences in the adoption of improved technologies and the use of purchased inputs across regions (see Peterman, Quisumbing and Behrman, 2010, for a comprehensive literature review). For example, male-headed households show much wider use of

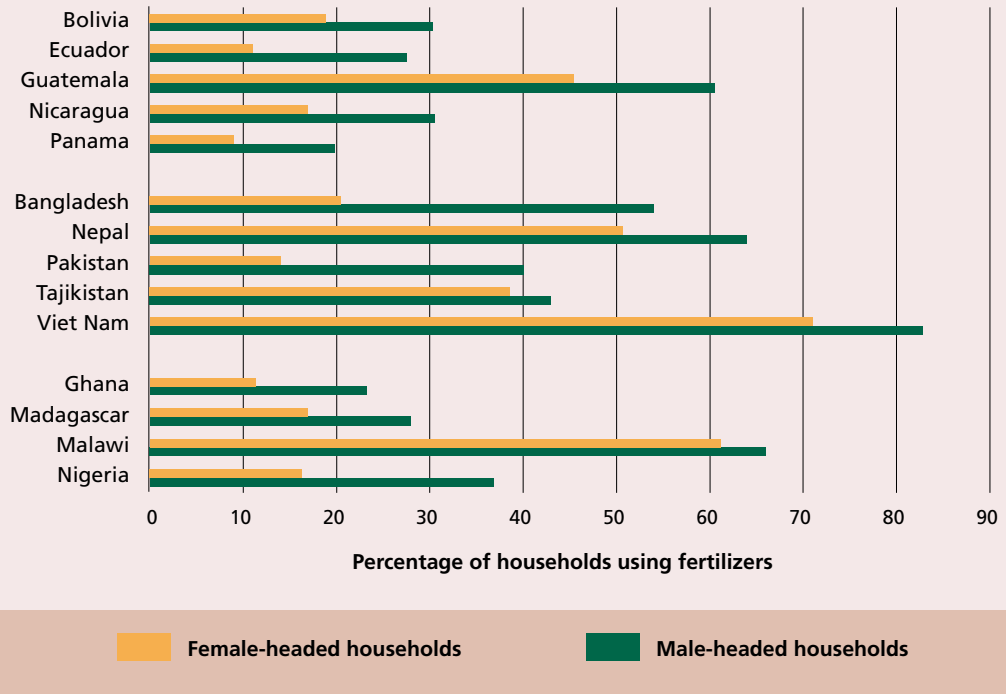
fertilizers than their female counterparts in all countries covered (Figure 14). While the direction of the difference is unambiguous across technologies and regions, the degree of inequality shows notable variations, appearing much more pronounced in Southern Asia (Bangladesh and Pakistan) and in West Africa (Ghana and Nigeria).

Detailed country studies provide deeper insights. In Ghana, for example, Doss and Morris (2001) found that only 39 percent of female farmers adopted improved crop varieties (compared with 59 percent of male farmers) because they had less access to land, family labour and extension services. Several studies from Kenya show that female-headed households have much lower adoption rates for improved seeds and fertilizers. These differences are explained by reduced access to land and labour, lower education levels and limited access to credit markets (Kumar, 1994; Saito, Mekonnen and Spurling, 1994; Ouma, De Groote and Owur, 2006). Credit constraints also limit the access of female-headed households to fertilizers in Benin and Malawi (Minot, Kherallah and Berry, 2000). In Burkina Faso, women use less fertilizer per hectare than men (Udry *et al.*, 1995).

Studies that disaggregate mechanization – tools and other farming equipment – by gender are rare. This may, in part, be because modern farming equipment such as tractors and tillers are not commonly available to any farmer, especially in sub-Saharan Africa. The share of farmers using mechanical equipment and tools is quite low in all countries, but it is significantly lower for farmers in female-headed households, sometimes by very wide margins (Figure 15).

A few studies from the late 1980s and early 1990s point to gender differences in ownership of, or access to, tools. In a Gambian irrigated rice scheme, none of the women owned a plough and fewer than 1 percent owned a weeder, seeder or multipurpose cultivation implement; the proportions of men owning these tools were 8, 12, 27 and 18 percent, respectively (von Braun, Hotchkiss and Immink, 1989). According to data from a household survey across three Kenyan districts, the value of farm tools owned by women amounted to

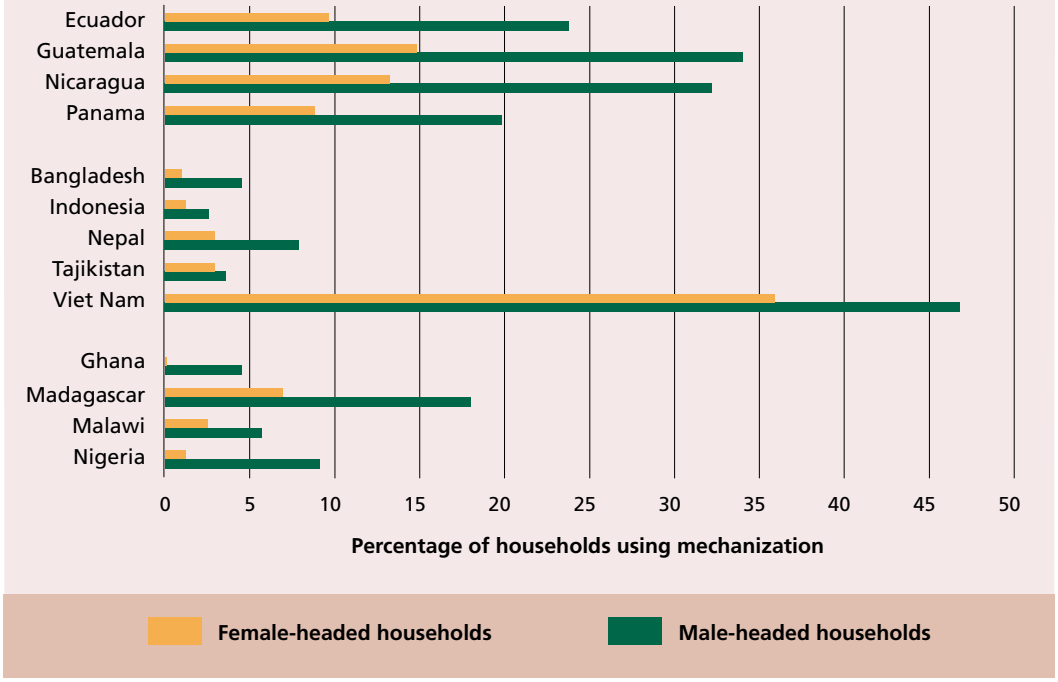
FIGURE 14
Fertilizer use by female- and male-headed households



Note: Calculations made using nationally representative household surveys. Differences between female- and male-headed households are significant at the 95 percent confidence level for all countries.

Sources: FAO, RIGA team, and Anríquez, 2010.

FIGURE 15
Mechanical equipment use by female- and male-headed households



Note: Calculations made using nationally representative household surveys. Differences between female- and male-headed households are significant at the 95 percent confidence level for all countries.

Sources: FAO, RIGA team, and Anríquez, 2010.

only 18 percent of the tools and equipment owned by male farmers (Saito, Mekonnen and Spurling, 1994).

In a more recent study of productivity differences by gender in a rice irrigation scheme in Central Benin, researchers noted that equipment such as motor cultivators used for ploughing and transport were managed by groups, but women's groups were unable to start ploughing until the drivers had completed work on men's fields. As a consequence of the delays in ploughing and planting, women faced yield losses and could not participate in a second cropping season (Kinkingninhoun-Mêdagbé *et al*. 2010). Gender differences in the use of farm equipment may have further implications. Quisumbing (1995), for example, concludes that farmers with more land and tools are more likely to adopt other technologies, thus highlighting the complementarities among agricultural inputs.

Furthermore, lack of access to transportation technology often limits the mobility of women and their capacity to transport crops to market centres (Box 7).

It is important to note that not all types of female-headed households are equally constrained in their access to technology. On small farms in Kenya, households headed by single, divorced or widowed women are the least likely to use animal traction. In contrast, female-headed households in which the husband lives elsewhere are more likely to use animal traction and hired labour, because they still benefit from their husband's name and social network and often receive remittances from him (Wanjiku *et al*., 2007).

Key messages

- Across diverse regions and contexts, women engaged in agriculture face gender-specific constraints that limit their access to productive inputs, assets and services. Gender gaps are observed for land, livestock, farm labour, education, extension services, financial services and technology.
- For those developing countries for which data are available, between 10 percent

BOX 7
Smallholder coffee production and marketing in Uganda

Coffee is Uganda's largest export, providing employment (directly and indirectly) to an estimated 5 million people (Bank of Uganda, 2001; Kempaka, 2001). Smallholders' coffee is usually intercropped with staples such as banana, plantain, beans, sweet potatoes and maize. Simple farming methods are normally used to produce coffee; purchased inputs such as fertilizer or pesticides are used minimally and irrigation is rare.

A study by Hill and Vigneri (2009) draws on a sample of 300 coffee-farming households that were surveyed in 1999 and 2003. Twenty-three percent of the households were headed by females (mainly widows, but also unmarried, separated and divorced women). Female-headed households had less labour, land and coffee trees than male-headed households; they also had lower levels of wealth and education. Women household heads tended to be older; many were wives who had taken over when their husband had died. As a result of these basic differences in scale, liquidity and human capital, we may expect crop choice, production methods and access to markets to be quite different for male- and female-headed households.

The share of labour allocated to coffee production and the proportion of trees harvested were comparable between male- and female-headed households, as was the yield per producing tree. However, because female-headed households farmed on a much smaller scale, women sold smaller amounts than men (only 47 kg, on average, compared with 151 kg for men).

Most smallholders sold their coffee in the form of dry cherries locally known as *kiboko*, which would then be milled by the traders who bought the coffee. Some farmers transported their coffee to market, which allowed them to sell it at a higher price. Members of male-headed households were more likely than those of female-headed households to travel to market to sell their coffee. Fifteen percent of the transactions made by male-headed households took place in the nearby coffee market, compared with only 7 percent of transactions by women. This may be because men were more likely to own a bicycle and could therefore travel to the market more easily than women. Farmers received a higher price for their coffee if they chose to mill it at the market before selling it. Only 3 percent of transactions were for milled coffee, all of which were made by male-headed households.

The study concludes that gender differences in marketing are largely explained by the fact that women market smaller quantities of coffee and do not own bicycles. It also finds that a major constraint facing women is their relative difficulty in accessing marketing channels that allow added value. By engaging in marketing channels in which they add value, male-headed households received 7 percent more per kilogram of coffee.

and 20 percent of all land holders are women, although this masks significant differences among countries even within the same region. The developing countries having both the lowest and highest shares of female land holders are in Africa.

- Among smallholders, farms operated by female-headed households are smaller in almost all countries for which data are available. The gap is negligible in some countries, but in others farms operated by female-headed households are only half to two-thirds the size of farms operated by male-headed households.
- The livestock holdings of female farmers are much smaller than those of men in all countries for which data are available, and women earn less than men from their livestock holdings. Women are much less likely to own large animals, such as cattle and oxen, that are useful as draught animals.
- Farms run by female-headed households have less labour available for farm work because these households are typically

smaller and have fewer working-age adult members and because women have heavy and unpaid household duties that take them away from more productive activities.

- Education has seen improvements in gender parity at the national level, with females even exceeding male attainment levels in some countries, but in most regions women and girls still lag behind. The gender gap in education is particularly acute in rural areas, where female household heads sometimes have less than half the years of education of their male counterparts.
- Smallholders everywhere face constraints in accessing credit and other financial services, but in most countries the share of female smallholders who can access credit is 5–10 percentage points lower than for male smallholders. Access to credit and insurance are important for accumulating and retaining other assets.
- Women are much less likely to use purchased inputs such as fertilizers and improved seeds or to make use of mechanical tools and equipment. In many countries women are only half as likely as men to use fertilizers.

4. Gains from closing the gender gap

Many studies show that yields on plots managed by women are lower than those managed by men. This is not because women are worse farmers than men. Indeed, extensive evidence shows that women are just as efficient as men. They simply do not have access to the same inputs. If they did, their yields would be the same as men's, they would produce more and overall agricultural production would increase.

The relationship between gender equality and agricultural productivity can be explored using OECD's index of Social Institutions and Gender Inequality (SIGI) (OECD, 2010). The SIGI index reflects social and legal norms such as property rights, marital practices and civil liberties that affect women's economic development. A lower SIGI indicates lower levels of gender-based discrimination. Countries with lower levels of gender inequality tend to achieve higher average cereal yields than countries with higher levels of inequality (Figure 16). Of course, the relationship shows only correlation, not causation, and the direction of causality could run in either direction (or in both directions). In other words, more equal societies tend to have more productive agriculture, but more productive agriculture can help reduce gender inequality.

Research surveyed below confirms that closing the gender gap in agriculture can improve agricultural productivity, with important additional benefits through raising the incomes of female farmers, increasing the availability of food and reducing food prices, and raising women's employment and real wages.

FIGURE 16
Cereal yield and gender inequality



Notes: Gender inequality is a measure used by the Social Institutions and Gender Index (SIGI), a composite measure of gender discrimination based on social institutions, constructed by the OECD Development Centre.

Sources: Cereal yield: FAO, 2010b; SIGI group: OECD, 2010.

Productivity of male and female farmers

Many studies have attempted to assess whether female farmers are as productive as male farmers. These studies measure productivity in a variety of ways, but the most common method is based on output per hectare of land, or yield. Simply comparing yields on men's and women's farms can reveal differences between the two groups – women typically achieve lower yields than men do – but it does not explain why. The most thorough studies also attempt to assess whether these differences are caused by difference in input use, such as improved seeds, fertilizers and tools, or other factors such as access to extension services and education. The vast majority of this literature confirms that women are just as efficient as men and would achieve the same yields if they had equal access to productive resources and services.

A thorough literature search identified 27 studies that compare the productivity of male and female farmers.[10] These studies covered a wide range of countries (primarily, but not only, in Africa), crops, time periods and farming systems, and used various measures of productivity and efficiency. Despite this variety, most found that male farmers achieved higher yields than female farmers. The estimated yield gaps ranged widely but many clustered around 20–30 percent, with an average of 25 percent.[11]

Most of the studies found that differences in yields were attributable to differences in input levels, suggesting that reallocating inputs from male to female plots can increase overall household output. Several studies showed this explicitly. Because this literature is complex and somewhat contentious, it is summarized below.

One of the most influential studies in this field comes from Burkina Faso. The authors compared 4 700 agricultural plots in six villages. With the exception of own-labour, the plots controlled by women used less of all other inputs: men's and children's labour, draught animal labour and organic and chemical fertilizers. Women's yields were lower than men's for a variety of crops – 20 percent lower for vegetables and 40 percent lower for sorghum – but the difference was explained entirely by their lower use of productive inputs, which in turn was a result of gender-specific social norms. The authors estimated that increasing input use on women's plots could increase overall output by 10–20 percent (Udry *et al.*, 1995). Further analysis of the same data found that overall household production could have been almost 6 percent higher if resources were reallocated towards women's plots (Udry, 1996).

Two additional studies from Burkina Faso provide a deeper understanding of these issues. The first found that female farmers produced 15 percent lower value per hectare than male farmers. It also found that female farmers needed advice from female agricultural extension workers – not just more inputs – in order to achieve higher yields, confirming the complementarities among the broad range of assets and services required for agricultural production (Bindlish, Evenson and Gbetibouo, 1993). The second reconsidered the data from Udry (1996) and supplemented them with more recent nationally representative data. It found that households located in less favourable production zones or in areas suffering from drought tended to allocate resources between male- and female-managed plots more efficiently than households in more favourable areas, perhaps because the risk associated with being inefficient was higher for them (Akresh, 2008).

Research in the Ethiopian highlands found that female-headed households produced 35 percent less per hectare, in value terms, than male-headed households but the differences were due to lower levels of input use and less access to extension services by the female farmers (Tiruneh *et al.*, 2001). In the same region, yields for barley and other cereals were found to be 50 percent higher for farms operated by men because farms run by female-headed households had only half the male labour and less than one-third of the amount of draught animal power (Holden, Shiferaw and Pender, 2001).

[10] For more detailed surveys of this literature, see Quisumbing (1996) and Peterman, Quisumbing and Behrman (2010).

[11] Not all of the 27 studies quantified the yield gap. Some provided estimates for a single crop while others reported on multiple crops.

Women in Ghana were found to be as efficient as men in maize and cassava production, but they achieved lower yields and earned lower profits because they could not maintain the fertility of their land (Goldstein and Udry, 2008). People who are disadvantaged in the social and political networks of their villages – like many female household heads – are more likely to have their land expropriated if they allow it to remain fallow, so they tend to keep their land under cultivation continuously, eroding soil fertility (Goldstein and Udry, 2008). Several studies from Ghana also confirm that male and female cocoa producers have the same yields when input use is the same (Quisumbing and Otsuka, 2001b; Hill and Vigneri, 2009).

Men producing maize, beans and cowpeas in Kenya achieve higher gross value of output per hectare than women, but the difference is accounted for by differences in input use (Saito, Mekonnen and Spurling, 1994). In western Kenya, female-headed households were found to have 23 percent lower yields than male-headed households, but the difference was caused by less-secure access to land and lower education levels (Alene *et al*., 2008). An earlier study of smallholder farmers in western Kenya found that women's maize yields were 16 percent lower than men's, largely because they used substantially less fertilizer (Ongaro, 1990).

A nationally representative study in Malawi found that maize yields were 12–19 percent higher on men's plots, but when women were given the same level of fertilizer for use on experimental plots, they achieved the same yields (Gilbert, Sakala and Benson, 2002).

Considerable evidence is available from Nigeria from several states and for a wide variety of crops. In Oyo State, male and female farmers growing maize, yam, cassava, vegetables and legumes were found to be equally productive (Adeleke *et al*., 2008). In Osun State, female rice producers achieved 66 percent lower yields than male farmers but the difference was attributable to differences in input use (Oladeebo and Fajuyigbe, 2007). Similarly, in Ondo and Ogun States, female small-scale cassava farmers achieved lower yields and lower returns than their male counterparts because they used fewer inputs and purchased inputs of lower quality or higher price (Timothy and Adeoti, 2006).

Additional studies in sub-Saharan Africa from Cameroon (Kumase, Bisseleua and Klasen, 2008), Benin (Kinkingninhoun-Mêdagbé *et al*., 2010), Côte d'Ivoire (Adesina and Djato, 1997) and Zimbabwe (Horrell and Krishnan, 2009) also overwhelmingly support the conclusion that differences in farm yields between men and women are caused primarily by differences in access to resources and extension services.[12]

Evidence from other regions is relatively rare because farming operations are less likely to be segregated by gender than is the case in Africa, but the available studies generally support the finding that female farmers are at least as efficient as their male counterparts. For example, female-managed farms in Nepal produce less value per hectare than male-managed farms, but the differences are nearly all accounted for by lower input use (Thapa, 2008). Female-managed farms in China are at least as profitable as those run by men, according to data from the China National Rural Survey (Zhang, De Brauw and Rozelle, 2004).

Some studies compare labour productivity rather than yields, but the results are consistent with the finding that yield differences are caused by differences in input use. The labour productivity of female farm workers in Bangladesh is at least as high as that of male workers when input use is the same (Rahman, 2010). Labour productivity studies for oil palm in Indonesia (Hasnah, Fleming and Coelli, 2004), for rice in Nepal (Aly and Shields, 2010) and for vegetables in Turkey (Bozoglu and Ceyhan, 2007) all show that female labour is at least as productive as male labour when differences in irrigation and seed type are considered.

Production gains from closing the gender gap

If gender-specific differences in input use could be overcome and female farmers could achieve the same yields as male farmers, the

[12] Some studies could not fully account for yield differences between male and female farmers because they did not consider all the resource gaps women face (Zavale, Mabaye and Christy [2006], Uaiene and Channing [2009], and Lilja, Randolph and Diallo [1998]).

evidence suggests that the production gains could be substantial. The potential gains cannot be calculated precisely because the necessary data are not available; however, a reasonable range can be estimated based on the yield gaps identified in the studies discussed above and the amount of farm land that women manage.

As noted above, studies of the yield gap between male and female farmers provide estimates averaging 20–30 percent, and most attribute the difference to lower levels of input use. Although most of these studies pertain to sub-Saharan Africa, similar input gaps have been documented for all regions in Chapter 3. Therefore, it is reasonable to assume that a similar range of yield gaps exists in other regions. Closing the input gap on the agricultural land held by women could increase yields on their land to the levels achieved by men. This would imply an increase in production of 20–30 percent on their land, and increases at the national level proportionate to the amount of land controlled by women. This would increase agricultural output in the developing countries for which data are available by an average of 2.5–4 percent.[13] Assuming that the input and yield gaps are representative of other developing countries, this would imply global gains of a similar magnitude.

Of course, the potential production gains calculated by this method are based on the existing distribution of land and a stylized yield gap of 20–30 percent. This implies that countries where women control proportionately more land could achieve the greatest potential gains. It may be the case, however, that the overall gender gap in access to agricultural resources is, in fact, wider where women control less land. The actual gains from closing the gender gap in access to resources would be greater in countries where the gender gap is wider. Increasing women's access to land as well as complementary inputs in that case would generate broader socio-economic benefits than those captured by this analysis.

This approach provides admittedly very rough estimates, but they suggest that closing the gender productivity gap could increase agricultural output in the developing world by a significant amount. Increased production would also imply increased food availability and reductions in undernourishment. The standard methodology used by FAO to estimate the number of people who are undernourished calculates the average daily dietary energy supply available for consumption in each country and applies country-specific criteria for its distribution and thresholds for minimum per capita energy requirements (see FAO, 2002 for details). People who fall below this minimum threshold are considered chronically undernourished. Domestic food production is a key component of the dietary energy supply, so – assuming that the additional output from closing the gender gap is consumed domestically – closing the gender yield gap could have a direct impact on reducing the number of people who are undernourished.

Inserting the potential output gains calculated above into the formula for estimating the number of undernourished provides a rough quantitative estimate of how closing the gender gap in agriculture could contribute to reducing hunger. If yield gaps of 20–30 percent were closed and domestic production increased by 2.5–4 percent, the number of undernourished people in the countries for which data are available could decline by 12–17 percent.[14] An estimated 925 million people in the world were undernourished in 2010, of which 906 million were in developing countries (FAO, 2010g), Gains of this magnitude could therefore equate to 100–150 million fewer people living in hunger. For countries where hunger is more widespread and women play a major role in the agriculture sector, the proportional declines could be even greater.

[13] Data on the share of women agricultural holders are available for 52 countries. The methodology for calculating potential gains starts with the definition of output (Q) as yield (Y) times area (A), Q = Y*A. Next, for the 20 percent productivity gap scenario, assume that women farmer's yields are only 80 percent those of men, i.e. $Y_f = 0.8*Y_m$. (The subscripts f and m denote female and male, respectively.) Now write Q=Y*A as $Q = Y_f *P*A + Y_m*(1-P)*A$, where P is the share of land cultivated by women farmers. Solve this problem for Y_m and then use $Y_f = 0.8*Y_m$ to obtain Y_f. Assuming the gender gap in productive assets is closed, set Y_f equal to Y_m and find the new output level, Q*.

[14] Data for both the share of women agricultural holders and the number of people undernourished are available for 34 countries.

These potential output gains would only be the first, direct, effect. Over time, higher productivity would have additional impacts such as increased demand by farmers for labour and locally produced goods and services (Hayami *et al*., 1978; FAO, 2004). Additional output could result in lower commodity prices, depending on the responsiveness of demand and the degree of trade openness. Most households in developing countries, including in rural areas, are net food buyers and would gain from a fall in staple food prices. Farm incomes could suffer, on the other hand, unless markets are sufficiently developed so as to handle the additional supply.

Other social and economic benefits of closing the gender gap

In addition to increases in production and income, closing the gender gap in agriculture would generate broader social and economic benefits by strengthening women's direct access to, and control over, resources and incomes. Evidence from Africa, Asia and Latin America consistently shows that families benefit when women have greater status and power within the household. Increased control over income gives women a stronger bargaining position over economic decisions regarding consumption, investment and production. When women have more influence over economic decisions, their families allocate more income to food, health, education, children's clothing and children's nutrition.[15] Social safety-net programmes in many countries now target women specifically for these reasons (Box 8).

A large number of studies have linked women's income and greater bargaining power within the family to improved child nutritional status, which in turn influences health outcomes and educational attainment (Smith *et al*., 2003). Evidence from the Philippines provided some of the earliest data showing that increasing the share of household income earned by mothers contributes positively and significantly to household food consumption (Garcia, 1991). This was reinforced by evidence from Brazil, which showed that maternal income exerts a larger effect on children's nutritional outcome indicators than paternal income and that women spend considerably more than men on education, health, and household services (Thomas, 1997). In extended family households in Mexico, the impact of increasing family income on the nutritional status of children depends on who earns the income; higher earnings by any female household member – not only mothers – has substantial positive impacts on child nutrition, while this is not the case for male income earners (Djebbari, 2005). More recent evidence from Malawi confirms that increasing women's – but not men's – access to credit increases total household expenditures on food and improves the long-term food security of young female children (Hazarika and Guha-Khasnobis, 2008).

The fact that gender inequality is particularly severe in Southern Asia helps explain, at least partly, why rates of child malnutrition there are twice those found in sub-Saharan Africa (Smith *et al*., 2003). Indeed, despite surpassing sub-Saharan Africa in terms of national income, democracy, food supplies, health services and education, Southern Asia still trails in child malnutrition. This has been labelled the "Asian enigma", which finds women's status, sanitation and urbanization to be the key factors in narrowing the gap in children's nutritional status. Recent evidence from Bangladesh confirms that children's long-term nutritional status is higher in households where women are more empowered (Bhagowalia *et al*., 2010).

Improved gender equality in access to opportunities and returns to assets not only improve nutrition, health and education outcomes, but can also have a long-lasting impact on economic growth by raising the level of human capital in society.[16] Closing the gender gap spurs economic development, largely through the impact of female education on fertility, child

[15] Important studies in this field include Behrman and Deolalikar (1988), Behrman and Wolfe (1989), Kennedy and Peters (1992), Kennedy and Haddad (1994), Hoddinott and Haddad (1995), Thomas (1997), Haddad (1999), Katz (2000), Quisumbing and Maluccio (2000), Smith *et al*. (2003) and Doss (2005).

[16] Important studies in this field include Dollar and Gatti (1999), Klasen (2002), Knowles, Lorgelly and Owen (2002), Kalaitzidakis *et al*. (2002), Lagerlöf (2003) and Klasen and Lamanna (2009).

BOX 8
Targeting transfer payments to women for social benefits

Conditional transfer programmes are a type of safety net programme in which cash or benefits in kind are transferred to generally poor households on condition that the household undertake certain types of human capital investment for the benefit of their children. Women are often targeted as the recipients of such payments because evidence shows they are more likely than men to prioritize child nutrition. The types of investments generally considered are in health – i.e. pre- and post-natal health care, health check-ups or attendance at health clinics – and in education – generally measured by enrolment and attendance rates. Conditional transfer programmes have rapidly gained popularity in the developing world. Starting from the *Oportunidades* (formerly known as *PROGRESA* – Education, Health and Nutrition Programme) programme in Mexico in 1997, they have expanded worldwide, with all developing regions having some active conditional transfer programme, although with the largest prevalence in Latin America.

Conditional transfer programmes can be used directly and indirectly to address gender inequities. With the exception of a few secondary school programmes, in the great majority of them the beneficiaries are the mothers. This choice is founded on the overwhelming evidence that, when women and mothers control a higher proportion of household income, families tend to spend a higher share of their budgets on the education, nutrition, and /or well-being of their children. *Post-factum* evaluations of conditional transfer programmes have confirmed this to be the case: the impact on spending patterns goes beyond the simple income effect of the transfer, with recipient households spending a larger proportion of their incomes on food (Schady and Rosero, 2008) and a relatively larger proportion on more nutritious food (Macours, Schady and Vakis, 2008).

An implicit, yet important, idea underlying these programmes is that by directing the transfers to mothers, they strengthen the bargaining position of women in the intra-household decision-making process. Some conditional transfer programmes successfully also target gender inequality directly. In Bangladesh and Pakistan, programmes exist to promote girls' enrolment in public education. In Bangladesh, the Female Secondary School Assistance Project (FSSAP) provides a stipend to girls aged 11–18 years for attending secondary school, while in Pakistan, the Punjab Education Sector Reform Programme (PESRP) provides "scholarships" for girls aged 10–14 to attend school. Both programmes have been very successful in increasing enrolment: Khandker, Pitt and Fuwa (2003) estimate that the FSSAP increased the enrolment of girls by 12 percentage points, while the PESRP increased it by 11 percentage points, according to an evaluation by Chaudhury and Parajuli (2010).

mortality and the creation of human capital in the next generation. Falling fertility rates will, after some years, lead to what Bloom and Williamson (1998) have termed the "demographic gift". The working-age population will grow faster than the rest of the population, reducing dependency rates and thus benefiting per capita growth.

It is also true that removing the gender gap in access to opportunities widens the pool of talent available, which, assuming that the talent is distributed equally among men and women, will again work to raise the level of human capital available in the working population. These growth studies suffer from the usual limitations: it is impossible to assign the direction of causality, and it could also be the case that higher growth causes countries to reduce gender inequality by economically empowering women. Nonetheless, the point remains that closing the gender gap in educational and employment opportunities would boost long-term growth.

Key messages

- Female farmers are just as efficient as male farmers but they produce less because they control less land, use fewer inputs and have less access to important services such as extension advice.
- Closing the gender gap in access and use of productive resources and services would unlock the productivity potential of women and could increase output substantially. Closing the gap could increase agricultural output in the developing world by 2.5–4 percent, on average, with higher gains in countries where women are more involved in agriculture and the gender gap is wider.
- Increasing agricultural production by this magnitude could reduce the number of undernourished people by 12–17 percent, and would imply significant progress towards achieving MDG 1C. This highlights the synergies that exist between promoting gender equality and reducing extreme poverty and hunger.
- When women control additional income, they spend more of it than men do on food, health, clothing and education for their children. This has positive implications for immediate well-being as well as long-run human capital formation and economic growth through improved health, nutrition and education outcomes.

5. Closing the gender gap in agriculture and rural employment

Closing the gender gap in agriculture is not an easy task, but progress can be made and simple interventions can sometimes be very powerful. Carefully designed policies, strategies and projects can work within existing cultural norms, through the public and private sectors, in ways that benefit both women and men (Box 9). Specific recommendations for closing the gender gap in access to land, rural labour markets, financial services, social capital and technology include the steps outlined below.

Closing the gap in access to land[17]

Governments have long recognized the importance of secure land tenure in promoting equitable, sustainable agricultural development. Women have not always benefited from general land distribution and titling efforts, however, and in some cases have seen their customary rights eroded as formal rights have been extended to male heads of household. Many governments have attempted to strengthen women's tenure rights within marriage and as individuals, but these efforts are often frustrated by a combination of legal and cultural practices that still favour men.

In Latin America, for example, inheritance is the most frequent source of transfer of ownership of land, but daughters are much less likely than sons to inherit land. Many countries in the region have instituted legal reforms that have strengthened married women's land rights, but land-titling efforts have not always facilitated the practice of including both husbands' and wives' names. In Asia, women typically have legal rights to land ownership, but often struggle to assert them. In the parts of sub-Saharan Africa where customary property regimes prevail, community leaders tend to favour males over females in the allocation of land, both in terms of quantity and quality. Where private property prevails, cultural norms generally dictate that men own and inherit land while women gain access to land through their relationship with a male relative.

Eliminate discrimination under the law

Where statutory legal rights to land remain gender-biased, a key strategy is to review and reform all national legislation that relates to land and natural resources. Although land laws are the starting point, related legislation should also be considered. Family and marriage laws, inheritance provisions and housing law are all important legal areas that play a supporting role in ensuring equitable treatment of men and women in control over land.[18]

Recognize the importance and power of customary land rights

Many countries have extended formal legal rights to women over land inheritance and ownership, but customary practices – and the inability of many women to assert their legal rights – mean that formal legal provisions are often not followed. In many countries, tradition is stronger than law when it comes to land issues. Opposition from land reform authorities, peasant unions, village authorities and male household heads can frustrate land reform efforts to extend legal land rights to both single and married women. Legal rights are difficult to enforce if they are not seen as legitimate; thus recognizing customary land rights and working with community leaders is essential to ensure that women's rights are protected.

[17] This section is based on FAO (2010h), which provides an extensive review of the relevant literature. Important studies in this field include Agarwal (1994), Agarwal (2003), Lastarria-Cornhiel (1997), Deere (2003), Deere and León (2003), and Deere and Doss (2006).

[18] Additional information on women and their status under the law is available at the World Bank website "Women, business and the law" (http://wbl.worldbank.org/).

BOX 9
Mama Lus Frut: working together for change

Palm oil production in Papua New Guinea is dominated by smallholder farmers, and harvesting oil palm trees is highly differentiated by gender: men cut fresh fruit bunches from the trees, while women collect loose fruits from the ground and carry them to the roadside where they are picked up by operators from the mill. These gender roles are firmly engrained in the local culture and institutions.

Family labour is mobilized for the harvest. While it was implicitly assumed in the past that the household head would compensate family members for their labour with the income gained from oil palm production, in reality, female household members were often not being compensated for their work. In many cases, this led to intra-household struggles and to women withdrawing their labour from loose fruit collection and focusing instead on vegetable production, which allowed them to earn, and keep, an income.

The local oil palm industry realized that between 60 and 70 percent of loose fruit were not being collected. The industry tried to raise the share of loose fruits in total harvest through several initiatives. First, they delayed the timing of loose fruit collection to take into account women's time constraints. Then they distributed special nets that made it easier to carry the loose fruits to the roadside. Neither initiative was successful, because they did not correctly assess why women were not collecting the fruit.

Finally, the Mama Lus Frut scheme was introduced in 1997 to ensure that women received payment for their work. Women received individual harvest nets and harvest payment cards, and they received their own monthly income based on the weight of the fruit they collected, deposited directly into their personal bank accounts. As a result, the number of women participating in the scheme more than doubled and the amount of loose fruits delivered to the mills increased significantly. By 2001, 26 percent of smallholder income from oil palm was directly paid to women. Men reacted positively because the gender division of labour remained unchanged and intra-household conflicts over palm oil harvesting decreased.

Sources: Kosczberski, 2001, and Warner and Bauer, 2002.

Indeed, strengthening traditional use-rights for widows and divorced women may provide more secure tenure for them even in cases where there is resistance to full ownership.

Educate officials and evaluate them on gender targets

Local land officials may be unaware of gender equity laws and objectives or lack the mechanisms, tools and will to implement them. Legislation needs to be supported by regulations and gender-specific rules and guidelines that educate officials in agriculture ministries, land institutions and other agencies regarding the implementation of the gender position of the law. Relevant training is also required for staff in the various institutions that carry out and enforce land rights, including land registries, cadastral offices, titling agencies, land magistrates and courts. Gender-balanced employment in these institutions can also help. Where appropriate, officials' performance should be evaluated against gender-related targets. The involvement of women's organizations in the process can facilitate the achievement of gender equity targets. Furthermore, gender targets for access and tenure security should be monitored and officials held accountable for meeting them.

In Nicaragua the property legalization process, which the women's affairs office helped coordinate, included gender sensitization training for officials and information campaigns on the inclusion of women in the process (FAO, 2010h). This has helped raise awareness and acceptance among men and women of women's land rights, although several rounds of training were necessary.

Educate women regarding land rights

Raising women's legal literacy, increasing the dissemination and accessibility of information and establishing supporting legal services are essential in promoting gender equity in land programmes. Legal literacy means that women are aware of their legal rights and know how they can be enforced and protected. Officials responsible for implementing land programmes must actively educate both men and women regarding gender equity provisions and the possibility of joint titling, rather than treating the decision as a private matter between spouses (Ikdahl, 2008; Brown, 2003).

Civil society organizations can be instrumental in promoting legal literacy. In Mozambique, when land legislation was integrated into literacy programmes or when non-governmental organizations (NGOs) distributed land law information repeatedly over a long time, women were more likely to know their rights to land (FAO, 2010h).

Precisely because they are so important, land tenure issues are often contentious, and women seeking to assert their rights may be subject to pressure from their families and communities. The provision of legal protections and affordable legal services are vital in this respect. Mobile legal clinics with staff trained in land issues may be a useful solution during land formalization programmes.

Ensure that women's voices are heard

Meaningful representation constitutes an important step towards helping women gain access to established rights. Women's organizations can be effective in promoting local participation, building a consensus and raising consciousness at all levels. The role played by women's organizations is especially valuable as women are generally not well represented in decision-making bodies, and they are often instrumental in pressuring for government programmes to include women as equal participants.

Rwanda provides an example of how state institutions and civil society organizations can work together to secure women's land rights. Rwanda successfully reformed its inheritance and land tenure legislation and now has among the best legal conditions for gender equity in these areas. Enactment of the new laws was made possible by the participation of women in local government. The 2003 constitution mandates that 30 percent of all decision-making representatives be women.

Similarly, in the United Republic of Tanzania, village land councils, which settle land disputes, comprise seven members, of whom three must be female (Ikdahl, 2008). Ethiopia's land certification process has been hailed as effective, low-cost, rapid and transparent, and gender equity goals have been advanced because land administration committees at the local level are required to have a least one female member.

In the Lao People's Democratic Republic, women were not receiving titles until the Lao Women's Union started to participate in the land-titling programme. The Union works at the national and local levels and has been active in informing both men and women about the titling process and their legal rights, as well as helping to formulate gender-sensitive procedures and train local field staff in their application.

Women must be an integral part of the implementation of land programmes. Training community members as paralegals, topographers and conflict mediators can help build community skills and increase the probability that women's concerns will be addressed.

Adjust bureaucratic procedures

Simple steps such as making space for two names on land registration forms can be a powerful tool for encouraging joint titling and protecting the rights of women within marriage. In Brazil, for example, women were guaranteed equal rights to land distributed through agrarian reform in 1988, but few women were registered as beneficiaries because the registration forms mentioned them only as dependants. The forms were changed in 2001 to include the names of both spouses as co-applicants or beneficiaries (Deere, 2003).

Rural women often lack the documents (such as birth records) required to obtain land titles, so facilitating access to such documents may be necessary. Placing photographs of owners on land certificates can reduce the likelihood of cheating and manipulation. Ethiopia's land programme, for example, requires that certificates for women bear their photographs to help ensure that they retain control over their

land. This measure has been credited with improving their security of tenure and has facilitated the renting-out of land by women (Deininger *et al*., 2007).

Gather sex-disaggregated data for policy design and monitoring

Gathering sex-disaggregated data can help improve the design and effectiveness of land-titling programmes. In Cambodia, for example, a land-titling project conducted a social assessment before implementation, revealing useful insights into gender inequality and land ownership that were subsequently used to inform the programme implementation. The fact that 78 percent of new titles were issued in the joint names of husbands and wives testifies to project's success in ensuring the inclusion of women.

Closing the gap in rural labour markets[19]

For most women in developing countries labour is their key asset. Agriculture is of particular importance as a source of self- and wage-employment, especially for women (and men) who lack training or resources for employment in other sectors. Viewed in this context, agriculture also contributes to poverty alleviation. Agricultural growth generates demand for labour and adds upward pressure on real wages for unskilled labour. Both of these have positive implications for poor men and women, but especially so for the latter (see Chapter 3).

The principle that both employment and job quality matter is reflected in target 1B of MDG 1: "Achieve full and productive employment and decent work for all, including women and young people". The United Nations' "Decent Work" agenda for achieving MDG 1B promotes four objectives that include employment generation as well as social protection, enforcement of labour standards and regulations, and social dialogue.

Target women's multiple trade-offs

Perhaps the gender issue that has most relevance for labour market participation is that of time allocated to productive and reproductive roles, which reflects social norms and child-rearing responsibilities. As noted in Box 3 (see page 14), in most rural areas women undertake most of the work related to child care, food preparation and other household responsibilities such as collecting fuel and water. Women are also heavily involved in unpaid agricultural production. When all household activities are taken into account, women generally work longer hours than men. Women face multiple trade-offs in the allocation of their time and, without policies and investment in labour-saving technologies, labour market participation is often not an option – even when the opportunities are available. Labour-saving technologies are discussed separately in the section on "Closing the technology gap" (see page 56).

Improving women's labour market participation also requires that governments create a good investment climate through strengthening property rights and providing public goods such as roads, electricity and water. Women's unequal access to assets and resources such as land limits their options for self-employment. Easier access to firewood, water and markets relaxes women's time constraints and can make an appreciable difference in their ability to participate in employment and self-employment. Women need to be involved in investment planning right from the beginning. In Peru, for example, women's direct participation in the design of a rural roads project ensured that greater priority was given to their needs. Upgrading was not restricted to roads connecting communities, but was extended to many non-motorized transport tracks used mostly by women and ignored by other road programmes. The resultant reduction in time spent obtaining food and fuel supplies enabled women to participate more in markets and fairs, and 43 percent of them reported earning higher incomes (World Bank, 2008).

Reduce gender inequalities in human capital

Women remain significantly overrepresented among the illiterate (UN, 2009). Improved access to education and better-quality education will help reduce some of the wage gap and, more importantly, allow women to diversify by widening the opportunities

[19] The analysis in this section draws on Termine (2010).

available to them. In countries where agriculture is a major source of employment for women, skill building should address relevant skills and knowledge gaps and focus on extension services and vocational training. A higher probability of obtaining a job in a particular sector will also influence parents' educational choices for their children. In the Philippines, women are more likely to obtain non-farm employment than men and this partly explains the higher educational attainment of girls (Quisumbing, Estudillo and Otsuka, 2003).

Policy interventions need to focus on school enrolment for girls, health interventions such as immunization and nutritional interventions that target women's specific needs throughout their life cycle. Conditional transfer programmes (see Box 8, page 44), which are often targeted at the women in the household, have been used successfully to improve the education, health and nutrition of children and women (Quisumbing and Pandolfelli, 2010).

Capitalize on public works programmes

Informal labour is a major source of income for unskilled women in general, but especially so in times of crisis. Public works schemes can provide support to unskilled workers, including women. These are public labour-intensive infrastructure-development initiatives that provide cash or food-based payments in exchange for work. Such programmes have a number of advantages: they provide income transfers to the poor and are often designed to smooth income during "slack" or "hungry" periods of the year; they address infrastructure shortages (rural roads, irrigation, water-harvesting facilities, tree plantations, facilities for schools and health clinics); they are typically self-targeting, in view of the relatively low benefit levels and heavy physical labour requirements (Subbarao, 2003), and thus entail lower administrative costs than many other safety-net measures. They are also politically popular owing to the requirement that beneficiaries must work (Bloom, 2009), whereas generating support for direct cash transfers, particularly from middle-class voters, can be more challenging (e.g. Behrman, 2007).

The Ethiopian Productive Safety Net Programme was launched in 2005 as part of the Ethiopian Government's food security strategy and reaches over 7 million chronically food-insecure individuals. Support for pregnant and lactating women is one important benefit for many women. At the community level, the creation of water-harvesting facilities and land rehabilitation initiatives is a positive development for both women and men. Women also gain from the programme through the change in men's attitudes towards women's work capabilities as a result of regular joint work on public works. The programme has helped increase household food consumption and contributes to the costs of providing for children's needs, including clothing and education and health-care costs (Holmes and Jones, 2010). These benefits have been particularly valuable in the case of female-headed households who, prior to the programme, had fewer alternative avenues for support.

In India, the National Rural Employment Guarantee Act (NREGA) was implemented in 2005 with the goal of improving the purchasing power of rural people. It provides a legal guarantee for 100 days of employment per year for adult members of any rural household who are willing to do unskilled manual work on public projects in return for the statutory minimum wage. It also aims to empower rural women by promoting their participation in the workforce through a quota: at least one-third of all workers who have registered and requested work under the scheme in each state must be women. Moreover, the Act stipulates the payment of equal wages for men and women. Women's status appears to be strengthened when they are employed through the programme, particularly when they have access to income through their own bank accounts. NREGA's design incorporates the provision of crèche facilities, intended as a means of enhancing women's participation, but the provision of child-care facilities remains a serious implementation challenge (Jandu, 2008; Holmes and Jones, 2010).

Strengthen women's rights and voice

The lack of voice suffered by women, especially in rural communities, is both cause and consequence of the gender differences observed in rural labour markets.

Institutional changes can help achieve decent work opportunities and economic and social empowerment through labour markets and at the same time reduce gender inequalities in the context of informal employment in agriculture. Public policies and legislation can influence public attitudes and the values that underlie gender inequalities. Government legislation is essential for guaranteeing equitable employment conditions that protect workers in both formal and casual employment, the latter being of particular relevance to women. For example, governments can support the organization of women in informal jobs. At the same time, collective bargaining and voluntary standards can be important, in conjunction with more formal legislation. Rural producer organizations and workers' unions can play a vital role in negotiating fairer and safer conditions of employment, including better product prices and wages, and in promoting gender equity and decent employment for men and women.

Nevertheless, prevailing vertical and horizontal institutional arrangements (i.e. producer organizations, cooperatives, workers' unions, outgrower schemes) are generally controlled and managed by men. There is thus a need for effective empowerment of women among the membership and leadership positions in these organizations to ensure that rural women have a stronger voice and decision-making power.[20] At the same time, it is necessary to promote gender sensitivity within representative bodies through the training of men and women representatives, as this does not derive automatically from women's participation. Women representatives do not always have the capacity to address issues in a gender-sensitive way, especially when gender roles are perceived as rigid or if there exists strong opposition or conflict with men's interest. Gender sensitivity training is also relevant for staff in institutions that work with women and implement gender-focused policies.

[20] Additional information on women's parliamentary representation is available at the website of the Inter-Parliamentary Union website (www.ipu.org).

Closing the financial services gap[21]

Women's access to financial services is conditioned by their legal, social and economic position within the community and household. Some of the interventions required to close the gender gap in access to financial services are similar to those needed for other asset categories. For example, giving women equal rights to enter into financial contracts is a crucial first step in countries where legal and customary restrictions prevent women from opening savings accounts, taking loans or buying insurance policies in their own right.

Microfinance programmes have been highly effective in overcoming the barriers faced by women in accessing formal credit markets, as discussed in Chapter 3. Considerations for improving women's access to financial services are considered below.

Promote financial literacy

Financial institutions, governments and NGOs should offer financial literacy training to ensure that women can compare products and make decisions based on a clear understanding of the characteristics and conditions of the products available (Mayoux and Hartl, 2009). Such efforts could involve steps such as disseminating information and promotion materials in places or through channels that women can access, simplifying application procedures and adapting them to women's literacy and numeracy levels, and simplifying insurance contracts and communicating their conditions using language and examples that less-literate women can easily understand.

Design products that meet the needs of women

The past few years have seen noticeable progress in extending insurance products to small producers and to rural areas. Crop

[21] The material in this section is based on Fletschner and Kenney (2010). Important studies in this field include Berger (1989), Goetz and Gupta (1996), Pitt and Khandker (1998), Hashemi, Schuler and Riley (1996), Baydas, Meyer and Alfred (1994), Fletschner (2009), Fletschner and Carter (2008), Ashraf, Karlan and Yin (2010, Pitt, Khandker and Cartwright (2006), Holvoet (2004), Hazarika and Guha-Khasnobis (2008), Besley (1995), Boucher, Carter and Guirkinger (2008) and World Bank (2007a).

insurance and livestock insurance, for instance, are increasingly being offered as safety nets to farmers. Generally, however, such products are designed without due attention to gender differences, and the degree to which women access them is unclear. A notable exception to this pattern is the approach taken by BASIX, a large microfinance institution in India that offers weather insurance to women's self-help group members in drought-prone areas (Fletschner and Kenney, 2010).

A number of multilateral financial institutions and NGOs offer health insurance to women (Table 2). Illness can translate into a major income shock for resource-poor households, and women may be particularly vulnerable because they are more likely to be assigned the role of caregiver. Illness in the family thus reduces women's ability to engage in income-generating activities and weakens their ability to influence family decisions.

Life events such as birth, death, marriage and other cultural ceremonies also constitute shocks to rural households. Most micro-insurance plans described here cover pregnancy and birth-related expenses. Some offer life and funeral insurance (Sriram, 2005; Mgobo, 2008), but informal safety nets, such as burial societies, remain important sources

TABLE 2
Selected examples of health insurance products targeted towards women

PROVIDER AND COUNTRY	BENEFICIARIES	DETAILS
Bangladesh Rural Advancement Committee (BRAC) Bangladesh	Originally BRAC members only; since 2007 open to all community members (poor rural women are policy-holders)	Year started: 2001 Members: 10 000 (as of 2004) (Matin, Imam and Ahmed, 2005) Results: 55 percent did not renew after first year; poorer households less likely to know about programme and better-off households more likely to enrol; some clients found it difficult to pay annual premium; others who did not use services but enrolled found it to be a "waste" (ibid.)
SKS Bangladesh	SKS borrowers, who are primarily women (spouse and up to two children covered)	Year started: 2007, expanded in 2009 to cover spouses (usually husbands) Members: 210 000 (as of 2008); required for all new borrowers or renewing borrowers (as of 2007) (Chen, Comfort and Bau, 2008) Results: Women aged 16–30 are heaviest users (ibid.)
Self Employed Women's Association (SEWA) India	SEWA members and non-members (women are policy-holders)	Year started: 1992 Members: 110 000 (as of 2003), two-thirds from rural areas (Ranson *et al.*, 2006) Results: Found to reduce clients' vulnerability to shocks overall, but slow processing costly to clients; initially coverage was mandatory for all borrowers, but once it became voluntary, 80 percent dropped coverage (McCord, 2001)
SPANDANA India	Borrowers (compulsory, as part of loan product) (Sriram, 2005; CGAP, 2004)	Year started: 2003 (Sriram, 2005) Members: 84 000, including spouses (as of 2004) (CGAP, 2004). In 2007, 96.5 percent of borrowers were women (Mix Market, 2010)
Port Sudan Association for Small Enterprise Development (PASED) / Learning for Empowerment Against Poverty (LEAP) Sudan	Women NGO members (individual low-cost access to state health insurance) (Mayoux and Hartl, 2009)	Year started: 2007 (Mayoux and Hartl, 2009) Number of members: unknown
Kenya Women Finance Trust Limited (KWFT) Kenya	Medium and low-income women, with option to cover family members	Year started: 2008 Members: unknown, potentially 100 000 (total KWFT members) (Mgobo, 2008)
Zurich Financial Services and Women's World Banking (WWB) (Global)	WWB affiliates (women member MFIs)	Year started: 2009 Members: not yet known, but WWB network has 21 million members (WWB, 2010)

of income-smoothing for rural households, especially for women, who may face the loss of all assets upon a husband's death (Dercon *et al*., 2007; Mapetla, Matobo and Setoi, 2007).

Promote a women-friendly and empowering culture

Lenders and other financial institutions should promote a gender-sensitive culture throughout their organization (World Bank, FAO and IFAD, 2009). Women should be consulted and included in discussions, decision-making, planning and provision of services. Marketing strategies, promotion and service delivery should be gender-sensitive. Bringing men into projects and groups can have positive effects on gender relations and improve the success of the project, but also risks losing the focus on women (Armendáriz and Roome, 2008).

A large body of evidence shows that lending to women helps households diversify and raise incomes and is associated with other benefits such as increased livelihood diversification, greater labour market participation, more education and better health. It does not necessarily empower women, however, if they do not control the assets that are built or increased (Garikipati, 2008).

Products designed to strengthen women's position include the Grameen Bank's loans for purchasing land or houses requiring that they be registered in women's names and the loans offered by Credit and Savings Household Enterprise in India for parents to buy assets for their daughters, enabling them to generate income, delay their marriage and have assets they can take with them when they marry (Mayoux and Hartl, 2009). Along similar lines, a host of products have been designed to benefit other women in the community indirectly (Mayoux and Hartl, 2009): for instance, loans for businesses that employ women, or for businesses that offer services such as child care that benefit other women.

Use technology and innovative delivery channels

Technological innovations such as prepaid cards and mobile phone plans to make loan payments and transfer cash make it easier for women to gain access to capital by reducing the need to travel long distances, allowing them to sidestep social constraints that restrict women's mobility or the people with whom they can interact (Duncombe and Boateng, 2009). In another example, a bank in Malawi that hosts small-scale savings has introduced innovations that give women greater control over their income, such as the use of a biometric card that allows only the card holder to withdraw money from the account and the facility to open an account without an identity card, which many people in rural areas do not possess. The bank has successfully attracted large numbers of women to open bank accounts (Cheston 2007, cited in Quisumbing and Pandolfelli, 2010).

Financial institutions in countries such as Brazil, India, Kenya, the Philippines and South Africa have been able to reach rural customers at a lower cost by handling transactions through post offices, petrol stations and stores, and many telecommunication service providers allow their customers to make payments or transfer funds (World Bank, 2007a). These more accessible outlets can be particularly beneficial for rural women who have difficulty travelling to central business locations.

Closing the gap in social capital through women's groups

Building women's social capital can be an effective way to improve information exchange and resource distribution, to pool risks and to ensure that women's voices are heard in decision-making at all levels. Community-based organizations, including women's groups, can be an effective means of generating social capital. Functioning as production cooperatives, savings associations and marketing groups, women's groups can promote production and help women maintain control over the additional income they earn, as has been demonstrated by a project based around polyculture fish production in Bangladesh. As the project proved successful in providing additional incomes, the position of women within the household and community was also strengthened (Naved, 2000).

Achieving scale through pooling resources can help women overcome some of the constraints faced by individual farmers.

In Kenya, women farmers pooled their land parcels and organized themselves to establish savings associations and to deal with stockists and traders. In this way, they were able to solve problems experienced in acquiring access to land, credit and information (Spring, 2000). An impressive example of achieving scale is the Self Employed Women's Association (SEWA), which was founded in 1972 in Ahmedabad, India. This started as a small membership organization for poor women working in the informal sector. Today, it has more than one million members in 14 districts across India and aims at organizing groups with regard to services, access to markets and fair treatment. Its largest cooperative is the SEWA Bank, which in 2007–08 had over 300 000 accounts with about US$16.6 million in deposits (see Box 10). Established associations and networks are not always accessible to women, as demonstrated by another example, from southwest China. Here women found it difficult to access the male-dominated system of networks relating to the formal plant-breeding system (Song and Jiggins, 2002). Women-only groups can be an effective stepping stone to graduating into mixed-sex organizations or joining established groups.

Self-help groups have also proved to be an effective method for connecting women with financial institutions. Such groups may operate at the village level and typically require their members to meet regularly. Savings are collected from each member and either deposited in rural banks or loaned to other group members. After a group has demonstrated its capacity to repay loans, rural banks typically leverage the group's savings and provide additional capital that group members may use for agricultural purposes (World Bank, FAO and IFAD, 2009). There is evidence that working through groups can help women retain control over the loans they receive and enhance the returns to investments in women-managed enterprises (Garikipati, 2008).

While groups can be an important way of increasing women's voice, there can sometimes be an over-reliance on this mechanism. Women's groups, like any

BOX 10
India's Self Employed Women's Association (SEWA)

The main goal of the Self Employed Women's Association (SEWA) is to organize women to achieve full employment and self-reliance. In order to achieve this, SEWA sets up small self-help groups that meet monthly in members' fields, homes or community rooms. Farmers choose to join these groups to share mutual interests and concerns and to solve their problems collectively. For example, in the Sabarkantha district of Gujarat State, SEWA supported small-scale women farmers in creating a federation, the Sabarkantha Women Farmer's Association, and conducted a watershed conservation campaign in seven villages.

SEWA's facilitation approach includes capacity building provided by professional organizations. These organizations train SEWA members in managerial and leadership skills, providing training for self-organization and collective action to assist members in becoming confident leaders. The low literacy levels of female participants are a major challenge to effective training delivery. SEWA also offers functional literacy training that is group-based and facilitated by a local trainer from the community. The training focuses on reading skills and is designed around women's specific needs.

SEWA's village resource centres help farmers, through the self-help groups, to identify the potential benefits of new technologies, evaluate their appropriateness and participate in technology development processes. The resource centres also provide farmers with good-quality inputs, market information and technical advice. SEWA's cooperatives are authorized seed distributors of the Gujarat State Seed Corporation and provide timely and reasonably priced quality seeds (up to 20 percent below local market prices). The village resource centres communicate current output

collective action process, face challenges and costs. Membership fees may exclude resource-poor women from joining, and membership criteria such as land ownership would bar landless women from becoming members. Timing and length of meetings may interfere with women's daily tasks. Building trust within newly formed groups can take a significant amount of time. Women may also not be interested in joining a group because the group does not address their main concerns. Quisumbing and Pandolfelli (2008) report results from a project in the Philippines that encouraged women to monitor a lake to assess whether or not soil conservation techniques reduced silting. Women's participation was low, however, because their main interest was in health issues. When the project started to emphasize the relationship between health and water quality, women's participation increased. Understanding the motivations for joining a group is therefore essential in ensuring group sustainability (Pandolfelli, Meinzen-Dick and Dohrn, 2008). Policy-makers and practitioners need to understand clearly the specific issue they are trying to address in group formation, and that using existing, sometimes informal, groups and networks has proved more successful than initiating them from scratch.

Mixed-sex groups can be more effective where joint action is required, such as in natural resource management (Pandolfelli, Meinzen-Dick and Dohrn, 2008). In order for women to participate actively in mixed-sex groups, the groups must address women's problems and should be set up to allow the participation of more than one member of a household, if required (Meinzen-Dick *et al*., 2010). Mixed groups should also allow for women's voices to be heard. A case study on Ethiopia found that meetings with only women or with an equal number of men and women increased women's willingness to voice their opinion (German and Taye 2008). The specifics of group mechanisms, such as the management of funds and sharing of benefits, and the share of women in leadership positions, will also play a significant role in encouraging women to participate.

prices to female leaders in each village cluster through regular SMS messages, thereby enabling the self-help groups to bargain for better prices for their produce.

Among the SEWA organizations that enable market access for small-scale farmers, the Rural Distribution Network (RUDI) plays a special role. RUDI acts as a link between farmers and consumers by making regularly used goods available to villagers. Grains, spices and salt from various districts are transported to a processing centre and dispatched to selling centres. In this way, RUDI provides an outlet to farmer groups and employment to saleswomen.

SEWA's approach is particularly successful because it is an integrated process. Self-help groups and SEWA are closely linked through SEWA institutions such as their microfinance and insurance agencies and their training facilities, as well as their communication facilities such as the SEWA radio station. The SEWA approach is accountable and inclusive owing to its grassroots foundations and the effectiveness of service provision through self-help groups. SEWA is also powerful because of its internal cohesiveness and its linkages with external partners such as government departments, universities, research and development agencies, NGOs and private companies.

The 2 140 SEWA self-help groups often radically improve women's lives by increasing their income and food security and by enabling them to seize new opportunities. For example, the creation of the Sabarkantha Women Farmer's Cooperative enabled women farmers to reclaim 3 000 hectares of ravine lands in 73 villages. Incomes increased from an average of 5 000 Indian rupees (about US$ 112) to as much as 15 000 Indian rupees a year.

The ability to organize mixed-sex groups will depend on the gender segregation within a community. In communities with a high level of gender segregation, single-sex groups may lead to more desirable outcomes for women (Pandolfelli, Meinzen-Dick and Dohrn, 2008). Sometimes, however, excluding men can generate unnecessary obstacles. A project introducing the new livelihood strategy of mud-crab production to supply hotels in Unguja Island, United Republic of Tanzania, excluded men and the resultant anger among the men added transaction and input costs as women had to rely on a small number of male fishers for seedstock and feedstuff (Coles and Mitchell, 2010). Projects that intervene within the local socio-cultural dynamics should avoid "default" options and, instead, base their interventions on the specific context and the underlying problem.

Closing the technology gap

Closing the gap in women's access to a broad range of technologies could help free their time for more productive activities, enhancing their agricultural productivity, improving the market returns they receive and empowering them to make choices that are better for themselves and their families. Closing the technology gap requires that the necessary technologies exist to meet the priority needs of female farmers, that women are aware of their usefulness, and that they have the means to acquire them.

Develop technologies and environments that address women's needs

Previous chapters documented that rural women work very long days balancing a variety of tasks related to crop and livestock production, wage employment, child care and additional household obligations. The latter, such as food preparation and collecting firewood and water, occupy a large amount of women's time and limit women's participation in more productive activities. Studies from Kenya, Uganda and the United Republic of Tanzania, for example, show that children and women in rural areas fetch water from the main water source on average four times per day and require about 25 minutes for each trip (Thompson *et al*., 2001). Many of these tasks could be made much less onerous and time-consuming through the adoption of simple technologies.

Water is of particular importance to rural households because it is necessary for agricultural and household chores, but men and women often have different priorities with regard to water use. Women are frequently responsible for collecting all water used domestically, i.e. drinking water, sanitation and health. The introduction of water sources in villages can significantly reduce the time spent by women and girls fetching water (IFAD, 2007). For example, the construction and rehabilitation of water sources in six rural provinces of Morocco reduced the time that women and young girls spent fetching water by 50–90 percent. Primary school attendance for girls in these provinces rose by 20 percent over a period of four years, which was partly attributed to the fact that girls spent less time fetching water (World Bank, 2003).

Water projects that meet multiple livelihood objectives and take gender issues properly into account are more likely to be sustainable (Quisumbing and Pandolfelli, 2010). In Manzvire village, Zimbabwe, for example, a borehole rehabilitation project involved men and women in the decision-making process regarding the appropriate technology and sites for new water points, and women were trained in maintaining the new water sources. Their active involvement provided women with a strong sense of ownership for the sources; for example, they established saving schemes that provided funds to buy spare parts. One of the project's results was that four times more boreholes than targeted were rehabilitated (Katsi, 2006).

Firewood collection for cooking purposes can also occupy a large share of women's time and is – quite literally – a heavy burden. Women in rural Senegal, for example, walk several kilometres a day carrying loads of over 20 kg of wood (Seck, 2007). Deforestation and unfavourable weather events, such as drought, can increase the time spent on firewood collection. Fuel-efficient stoves can reduce firewood requirements by 40–60 percent (FAO, 2006b), in addition to reducing indoor pollution and the time required for cooking. Locally manufactured stoves can also provide

income-earning opportunities for rural artisans. In western Kenya, for example, the introduction of the *Upesi* stove led to considerable reductions in smoke levels. Women who used the stove reported time-savings of about ten hours per month. The stove saves up to 40 percent of fuel compared with traditional three-stone fires and has a lifespan of about four years. *Upesi* stoves are produced by local women's groups, generating income-earning opportunities for rural women (Okello, 2005). Woodlots, agroforestry and improved fallows can further reduce the time spent in collecting firewood by bringing the sources of firewood closer to the home. These measures require secure tenure as well as labour inputs and investments for which benefits will only be realized after a number of years (FAO, 2006b).

Appropriate farm tools for women can also reduce drudgery and time spent in the field. Farm tools that are predominantly used in operations dominated by women, for example weeding or post-harvest activities, are often not gender-specific. In fact, technology developers often think of technologies as being gender-neutral, but on average women tend to be of lower weight and height compared with men and may not have equal muscular strength (Singh, Puna Ji Gite and Agarwal, 2006). Improved farming tools can facilitate seed-bed preparation, planting, weeding and harvesting activities. For example, a case study in Burkina Faso, Senegal, Uganda, Zambia and Zimbabwe showed that long-handle hoes could ease the burden of the work for women compared with traditional short-handle hoes, but they were not acceptable in some of the countries because standing up was associated with laziness (IFAD/FAO/FARMESA, 1998). Another study from India demonstrated that women who used a groundnut decorticator were able to decorticate about 14 times more groundnuts and used significantly less physical effort than women who decorticated groundnuts by hand. When preparing land with a new hand tool designed for making ridges for vegetable crops, women were able to double the number of rows finished in one hour (Singh, Puna Ji Gite and Agarwal, 2006). Thus, attention should be paid to developing appropriate, context-specific technologies as well as enhancing women's access to them. Conducting baseline surveys of households and communities before new technologies are introduced may help predict how men and women will be affected by them (Quisumbing and Pandolfelli, 2010). Greater involvement of women in agricultural research and higher education could also enhance the development of female-friendly technology.

Improved crops with higher yields and better adapted to pests and diseases can also be labour-saving, by reducing the time for cropping operations. Certain crops, for example cassava and other root and tuber crops, have lower labour requirements and allow for more flexibility in cropping operations. Varieties that are harvested in seasons with low labour requirements can ease labour bottlenecks. Integrated pest management techniques can decrease labour requirements and costs for pesticide application, reduce farmer exposure to hazardous chemicals and increase yields. Conservation agriculture, or no-tillage systems, decreases the labour needed for land preparation and weeding, because the field is covered with cover crops and seeding is done directly without preparing the seedbed (FAO, 2006b). Biological nitrogen-fixation technologies to improve soil fertility, such as agroforestry innovations or grain legumes, can raise productivity and save labour.

Improve extension services

Extension services are important for diffusing technology and good practices, but reaching female farmers requires careful consideration. In some contexts, but not all, it is culturally more acceptable for female farmers to interact with female extension agents. Whether they are male or female, extension agents must be sensitive to the needs and constraints faced by their female clients. Extension services for women must consider all the roles of women; women's needs as farmers are often neglected in favour of programmes aimed at household responsibilities.

Hiring female extension agents can be an effective means of reaching female farmers. The United Republic of Tanzania, for example, raised the share of female extension agents to 30 percent in the mid-1990s, because many female farmers

indicated that "they felt freer to discuss problems with them ... and their time preferences were better met" (Due, Magayane and Temu, 1997). This preference is not universal, however, so in many cases properly trained male extension agents may be able to provide equally effective services.

Male extension agents must be sensitized to the realities of rural women and the quality of information provided to women improved. This requires careful and location-specific analysis of their situation. Cultural barriers could be overcome by organizing women in groups and possibly providing separate training for male and female farmers. Extension systems will also have to be more innovative and flexible to account for time and mobility constraints. Indeed, women farmers tend to be less mobile than their male counterparts owing to time constraints, restricted access to transportation and potential social and cultural obstacles that keep them from travelling outside their village boundaries. Women also often have seasonal workloads that can conflict with the timing of extension training programmes.

The Government of Ethiopia has endeavoured to render its extension services more gender-responsive by mandating its national and regional Bureaus of Agriculture to introduce extension services closely linked to women's activities, to encourage women to participate in every programme and to assist women in obtaining better access to agricultural inputs (Buchy and Basaznew, 2005). Women's involvement in farmer-to-farmer training and extension has also had positive results in Uganda (Box 11).

Scale up farmer field schools

Farmer field schools (FFS) have proved to be a participatory and effective way of empowering and transferring knowledge to women farmers. For example, women in Kenya, Uganda and the United Republic of Tanzania who participated in FFS were more likely to adopt major technologies, including improved crop varieties, livestock management and pest control techniques. In all three countries, women made up, on average, 50 percent of all FFS participants and they benefited significantly from their participation. For example, participants from female-headed households achieved 23 percent higher increases in income from livestock production than participants from male-headed households and were able to nearly double per capita agricultural income. FFS were easily accessible to women as well as to poor farmers and farmers with low literacy levels. Farmers particularly valued the participatory learning approach and the ability to do practical experiments using new technologies in the field (Davis *et al*., 2009).

When targeting female participation in the FFS, time constraints play a significant role. A case study of FFS for integrated pest management in rice in Sri Lanka showed that they can take up to 15 half-day meetings in a single season (Tripp, Wijeratne and Piyadasa, 2005). Crop preferences or crop operations relevant to women farmers also determine the extent to which women participate. A participatory potato research initiative in Peru attracted only about 12 percent female participation because women thought of potato as a "male" crop. However, participation was as high as 60 percent in sessions dealing with planting, harvesting and evaluating potato clones because these tasks were perceived as "female" (Buck, 2001; Vasquez-Caicedo *et al*., 2001).

FFS are sometimes criticized as being financially unsustainable because they require high initial investments and significant recurrent costs. Comparisons show that costs vary widely by country and crop, and that costs per farmer decline as project managers learn to use local training materials, replace international experts with local staff, and increase the number of participants (van den Berg and Jiggins, 2007). In order to increase the impact of FFS on women and to ensure their sustainability, it is important to train women farmers in effectively communicating learned experiences. This will enable them to become facilitators in other FFS or to communicate with non-participating farmers.

Key messages

- Gender gaps can be closed across a wide range of agricultural inputs, assets and services. Many steps are required by many different actors – governments, civil society, the private sector and individuals – but the basic principles are

BOX 11

Women in a sustainable rural livelihoods programme in Uganda[1]

Women feature prominently in a sustainable rural livelihoods (SRL) programme established in 2004 in eastern Uganda's Kamuli District. The primary goals of the programme are to improve food security, nutrition and health at the household and community levels. Related goals are increased sources and levels of income, resilience to stresses and shocks, and the sustainable management of natural resources. The SRL is a collaborative programme of Iowa State University's Center for Sustainable Rural Livelihoods, Makerere University's Faculty of Agriculture and VEDCO (Volunteer Efforts for Development Concerns), a Ugandan NGO.

The programme employs a farmer-to-farmer training and extension approach to demonstrate and disseminate information on key management practices, for example: planting banana or cassava in ways that ensure productivity and control diseases, enhancing soil fertility through composting with manure, growing and utilizing nutrient-dense crops such as amaranth grain and Vitamin A-rich sweet potatoes. It also emphasizes the establishment of multiplication gardens and seed nurseries, post-harvest management and storage, improving livestock breeding and feeding, integrating nutrition and health with agriculture, farm enterprise development, marketing, and strengthening farmer groups.

Groups were formed following community meetings and were often based on existing self-help groups such as savings clubs. A large proportion of the 1 200 farm group members, leaders and trainers are women: about 58 percent of community-based rural development extension workers, 75 percent of community nutrition and health workers, 76 percent of committee members and 71 percent of executive committee members.

In response to the training and support that they receive, the rural development extension and community nutrition and health workers provide training and outreach to farmer group members and others in their communities and well beyond. More than 2 000 other households have benefited from training and outreach services provided by these workers.

As a result of their participation in this programme, women's human capital has been enhanced through training and through experience gained in developing leadership skills, improved nutrition and health, and community-wide respect for their role as sources of valuable knowledge. In terms of social capital, they are integrally involved in farm groups and emerging marketing associations. Another key result has been a significant increase in household food security.

Innovations made through this three-way partnership in Kamuli District are now being mainstreamed in VEDCO's rural development support programme activities in nine other districts – for 25 000 smallholder farmers.

[1] Prepared by Robert Mazur, Professor of Sociology and Associate Director for Socioeconomic Development in the Center for Sustainable Rural Livelihoods, Iowa State University, USA.

the same across the board: eliminate discrimination under the law, make gender-aware policy and programming decisions, and give women greater voice in decision-making at all levels.

- Closing the gap in access to land and other agricultural assets requires, among other things, reforming laws to guarantee equal rights, educating government officials and community leaders and holding them accountable for upholding the law and empowering women to ensure that they are aware of their rights and able to claim them.
- Women's participation in rural labour markets requires freeing women's time through labour-saving technologies and the provision of public services,

raising women's human capital through education, eliminating discriminatory employment practices, and capitalizing on public works programmes.

- Closing the gap in financial services requires legal and institutional reforms to meet the needs and constraints of women and efforts to enhance their financial literacy. Innovative delivery channels and social networks can reduce costs and make financial services more readily available to rural women.
- Improving women's access to agricultural technologies can be facilitated through participatory gender-inclusive research and technology development programmes, the provision of gender-sensitive extension services and the scaling up of FFS.
- Women's groups and other forms of collective action can be an effective means of building social capital and addressing gender gaps in other areas as well, through reducing transactions costs, pooling risks, developing skills and building confidence. Women's groups can be a stepping stone to closing the gender gap in participation in other civil society organizations and government bodies.

6. Closing the gender gap for development

Evidence from an extensive body of social and economic research surveyed in this report confirms the contributions women make to the agriculture sector and rural enterprises, the gender-specific constraints they face in accessing resources and opportunities, the potential benefits for the sector and society that could be achieved by reducing those constraints, and lessons learned from policies, programmes and interventions aimed at closing the gender gap in agriculture. The conclusions are clear: (i) gender equality is good for agriculture, food security and society; and (ii) governments, civil society, the private sector and individuals, working together, can support gender equality in agriculture and rural areas.

Enabling women to achieve their productive potential requires many of the same reforms that are necessary to address constraints facing small-scale farmers and rural people in general, but additional care must be taken to ensure that women's voices are heard in the design and implementation of policies and interventions. No simple "blueprint" exists for achieving gender equality in agriculture, but some principles are universal and many lessons can be learned about best practices. Basic principles for achieving gender equality and empowering women in agriculture include the following:

- **Eliminate discrimination against women under the law**. Governments have a fundamental responsibility to ensure that their laws and policies guarantee equal rights for men and women to control assets such as land and to receive services such as education, extension and credit. Governments also have a responsibility to ensure that institutions and officials at all levels are fully supportive of the realization of equality under the law. Officials must understand the law and be held accountable for implementing provisions and policies on gender equality. Governments and civil society must work together to ensure that women are aware of their rights and have the support of their governments, communities and families in claiming their rights.
- **Strengthen rural institutions and make them gender-aware**. Strong, effective and inclusive rural institutions are essential for poverty reduction, economic development and the empowerment of small producers and the rural poor, particularly women. Efforts are required to ensure that women and men are equally served by rural institutions such as producers' organizations, labour unions, trade groups, and other membership-based organizations. Other public and private service providers that operate in rural areas, such as extension services, animal health services and microfinance organizations, should consider the specific needs of men and women to ensure that their activities are gender-aware. Women's groups have an important role to play, but other rural institutions must also be accessible to women and responsive to their needs.
- **Free women for more rewarding and productive activities**. The most valuable asset most poor people have is their own labour, but many women are compelled to spend too much of their time in drudgery: fetching water, carrying wood, and processing food by hand. Such work has to be done because water pumps, modern fuel sources and grain mills are missing. Investments in basic infrastructure for essential public services can liberate women from this drudgery and free them for more rewarding and productive work.
- **Build the human capital of women and girls**. No single intervention can by itself address the multiple challenges

enumerated in this report, but building the human capital of women and girls is fundamental. General education and the ongoing transfer of information and practical skills will broaden the range of choices women can make and give them more influence within their households and communities. Building women's human capital makes them better farmers, more productive workers, better mothers and stronger citizens.

- **Bundle interventions**. Some assets are complementary and the constraints women face are often mutually reinforcing. Interventions therefore should be appropriately bundled and sequenced and should consider women within their broader social contexts. Relaxing one constraint may be helpful, but others may soon become binding, so it is often necessary to address multiple constraints. What is more, it is impossible to separate women's economic activities from their household and community roles and responsibilities. The gender-related constraints women face due to power relations within the family and community may affect their ability to engage in economic activities and retain control over the assets they obtain. Bringing men into the process will help ensure that progress towards gender equality is broadly beneficial and sustainable.
- **Improve the collection and analysis of sex-disaggregated data**.[22] Understanding of many gender issues in agriculture – including crop, livestock, fisheries and forestry sectors – is hindered by the lack of sex-disaggregated data, and inadequate analysis of the data that exist. Agricultural censuses should focus more attention on areas in which women are relatively more active and collect sex-disaggregated data on ownership of, access to and control over productive resources such as land, water, equipment, inputs, information and credit. They should avoid gender biases in the concepts and definitions used to ensure that the resulting data accurately highlight gender interactions and inequalities in the agriculture sector. More detailed time-use surveys would lead to greater understanding of women's contributions to household production and welfare as well as to their time constraints. The quantity and quality of sex-disaggregated data for policy-making can be increased through the integration of agricultural censuses and surveys and the retabulation of existing census data. Gender differences and their implications may be more visible when sex-disaggregated data are collected, analysed and presented at subnational levels and by age groups.
- **Make gender-aware agricultural policy decisions**. Virtually any agricultural policy related to natural resources, technology, infrastructure or markets will affect men and women differently because they play different roles and experience different constraints and opportunities in the sector. Good agricultural policy requires an understanding of the gender dimensions at stake. Because some agricultural and gender issues are location-specific, these may best be addressed through location-specific assessments and tailored policies and programmes. Because interventions may have gender-impacts that are difficult to predict, policies and programmes should include the collection of baseline data and rigorous monitoring and evaluation, and practitioners should be prepared to reformulate their activities in response to unforeseen developments. Making women's voices heard at all levels in decision-making is crucial in this regard.

[22] FAO has developed the *Agri-Gender Statistics Toolkit* FAO, 2010i), providing technical guidance to support the enhanced production and use of sex-disaggregated agricultural data.

Part II

WORLD FOOD AND AGRICULTURE IN REVIEW




Part II

World food and agriculture in review

From 2007 to 2009, a food price crisis followed by the financial crisis and global economic recession pushed the number of hungry and undernourished people in the world to unprecedented levels, reaching a peak in 2009 of more than 1 billion.[23] In the first half of 2010, world agricultural commodity markets appeared to enter calmer times. Prices of food and agricultural commodities remained high, but had nevertheless declined from the peaks of 2008, and the world economy was emerging from recession.

However, there are growing concerns about high market volatility. These were reinforced from June through October 2010, when cereal prices – particularly those of wheat and maize – increased as drought in the Russian Federation and high temperatures and excess rain in the United States of America reduced supplies. During the food price crisis, many governments took a number of uncoordinated policy actions intended to ensure adequate supplies on domestic markets, inter alia through export bans and other restrictions on exports. Many of these actions, in fact, exacerbated price volatility on international markets.

This part of the report examines levels and trends in global hunger in the context of recent developments in agricultural markets and the global economy. It reviews recent trends in global production, consumption and trade of food and agricultural products and discusses price developments on international and domestic food markets. The analysis focuses on increasing disquiet over price volatility and the resilience of markets to price and economic fluctuations.

TRENDS IN UNDERNOURISHMENT[24]

With the improved prospects for the global economy and lower food commodity prices, FAO projects that the number of undernourished people in the world will decline in 2010 to 925 million people, from the estimated 2009 peak of 1.023 billion (Figure 17). Despite this welcome reduction in world hunger, the number of undernourished remains unacceptably high, representing the second-highest number since FAO's records began.[25]

The decline in 2010 constitutes a reversal of the constant upward trend observed since 1995–97. Indeed, after a steady, albeit slow, decline from 1970–71 to 1995–97, the following years saw a gradual increase in the number of undernourished people in the world. The upward trend accelerated sharply in 2008 during the food price crisis. The number of undernourished spiked in 2009 as a result of the financial crisis and the persistence of high food prices in the domestic markets of many countries in developing regions.

In spite of the increase in the absolute number of undernourished people between 1995–97 and 2009, the proportion of the population who are undernourished in the developing world[26] continued to decline, albeit very slowly, even after 1995–97, before increasing in both 2008 and 2009 (Figure 18). In 2010, 16 percent of the population in developing countries were undernourished, down from 18 percent in 2009 but still well above the target set by the Millennium Development Goal 1C to halve to 10 percent the proportion of undernourished between 1990 and 2015.

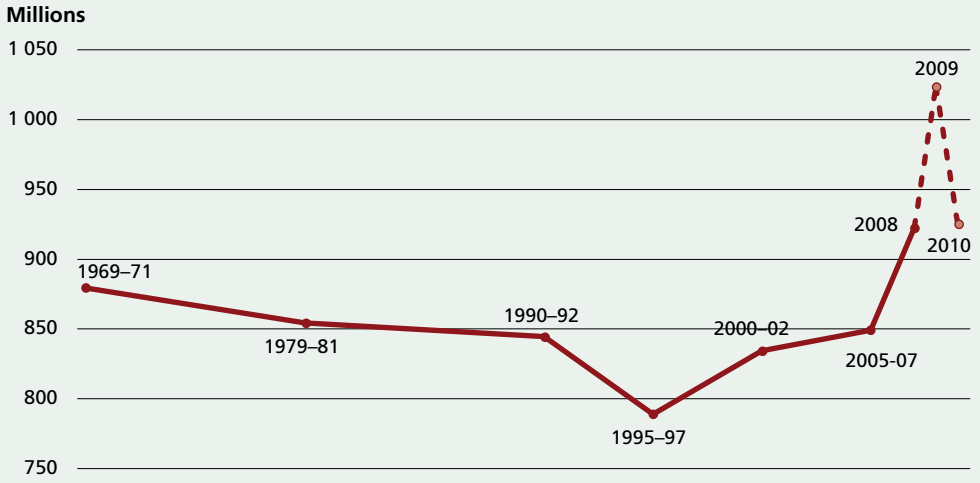
[23] This review of world food and agriculture is based on information available at the end of October 2010. More current information on agricultural markets and the world food situation can be found at http://www.fao.org/worldfoodsituation/wfs-home/en/?no_cache=1 and http://www.fao.org/publications/sofi/en/

[24] A more detailed analysis of trends in global undernourishment and the impact of the crisis on global food security can be found in FAO, 2010g.

[25] FAO estimates date back to 1969–71.

[26] Countries in developing regions account for 98 percent of the world's undernourished population.

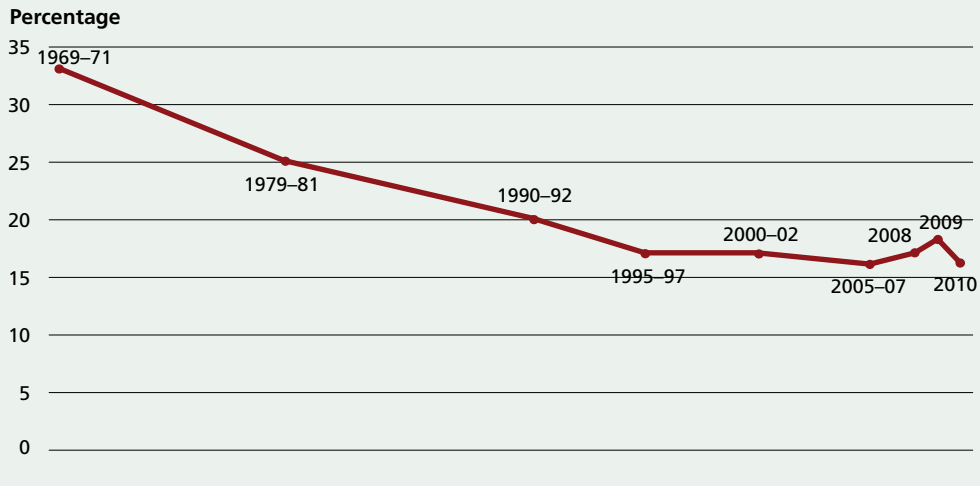
FIGURE 17
Number of undernourished people in the world, 1969–71 to 2010



Notes: Figures for 2009 and 2010 are estimated by FAO with input from the United States Department of Agriculture, Economic Research Service. Full details of the methodology are provided in the technical notes available at www.fao.org/publication/SOFI/EN/.

Source: FAO, 2010g.

FIGURE 18
Proportion of population that is undernourished in developing regions, 1969–71 to 2010



Source: FAO, 2010g.

Most of the world's 925 million hungry people (62 percent of the total) live in Asia and the Pacific, the world's most populous region, followed by sub-Saharan Africa, home to 26 percent of the world's undernourished population (Figure 19). The highest prevalence of undernourishment is found in sub-Saharan Africa, where in 2005–07 (the latest period with complete information by country) 30 percent of the total population were estimated to be undernourished, although large variations occur among countries. While the prevalence of hunger is lower in Asia and the Pacific

(16 percent), Latin America and the Caribbean (9 percent) and the Near East and North Africa (7 percent), it varies greatly by subregion and by country within these regions.

Vulnerability of global food security to shocks

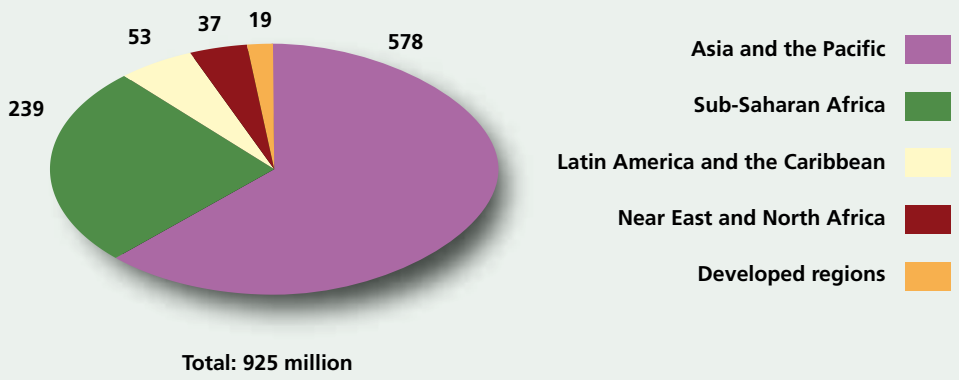
The events of the past few years have highlighted the vulnerability of global food security to major shocks – both in the global agricultural markets and in the world economy. The food price crisis and the ensuing economic crisis reduced the purchasing power of large segments of the population in many developing countries, severely curtailing their access to food and thus undermining their food security.

The rise in global undernourishment numbers in 2008 was a result of the spike in food prices from 2007 to 2008. From a historical perspective, the price developments in this period are not unprecedented, with markets exhibiting a comparable spike during the "world food crisis" of 1973–75 (Figure 20). Even so, FAO's Food Price Index (FPI) declined in real terms (using the United States GDP deflator) over the period 1961–2010.

Since the early 2000s, however, the downward trend appears to have been reversed, or at least interrupted, with food prices increasing significantly in real terms, culminating in the price spike of 2007–08. Although international food commodity prices fell in 2009, they remained high relative to prior years, and data through to October 2010 indicate an increase in the FPI from 2009 to 2010. Moreover, high domestic prices have persisted in many countries, as the decline in international prices was slow in being transmitted to domestic markets.

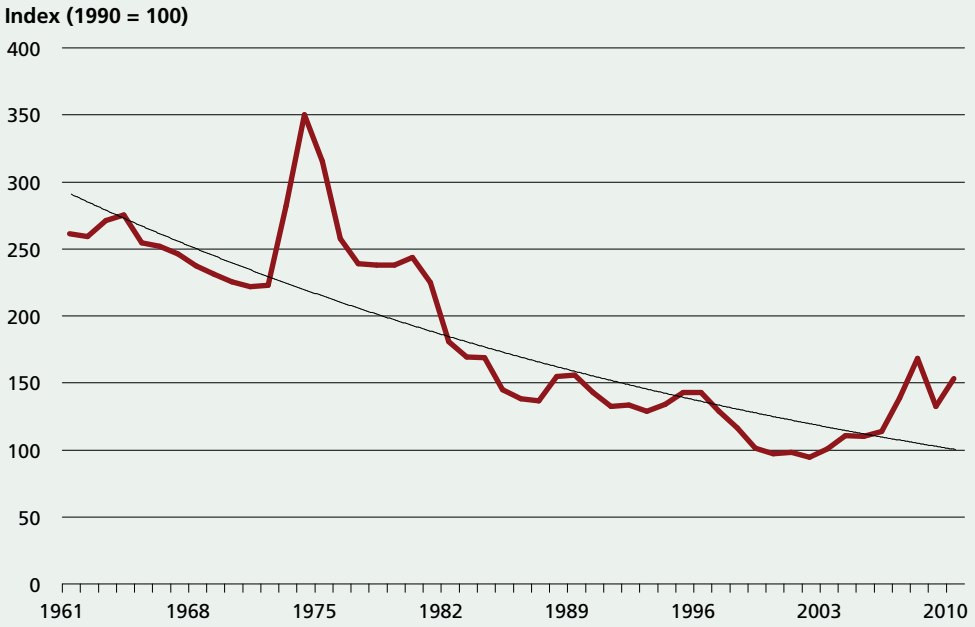
While food prices remained above their pre-crisis level, reduced incomes caused by the financial crisis had a detrimental effect on access to food, leading to a further sharp increase in global undernourishment levels. According to estimates of growth in per capita GDP (approximated using International Monetary Fund [IMF] estimates of growth in total GDP minus population growth rates), the global GDP per capita contracted in 2009, with the advanced economies affected more than the economies of the developing world (Figure 21). However, per capita GDP declined or stagnated in all developing regions, with the exception of developing Asia – where per capita GDP growth slowed to 5.8 percent, compared with more than 10 percent in 2007 (IMF, 2010a; IMF, 2010b). The economic recession had a severe negative impact on export revenues, foreign direct investments and foreign migrant remittances received by developing countries (FAO, 2009b). By 2010, the burgeoning recovery of the world economy and the significant increases in economic

FIGURE 19
Number of undernourished people in 2010, by region (millions)



Source: FAO, 2010g.

FIGURE 20
FAO Food Price Index in real terms, 1961–2010



Notes: Calculated using international prices for cereals, oilseeds, meats, dairy products and sugar. The FAO Food Price Index is calculated from 1990 to the present on a regular basis; in this figure it has been extended back to 1961 using proxy price information. The index measures movements in international prices and not necessarily domestic prices. The United States GDP deflator is used to express the Food Price Index in real rather than nominal terms.
Source: Calculations by FAO.

growth rates underpinned the reduction in global undernourishment numbers discussed above.

In spite of the declining numbers in 2010, reflecting the resumption of economic growth and reduction in food prices, the two crises have drawn our attention to the acute vulnerability of poor countries and populations to global shocks such as those experienced in the most recent years. In addition, localized shocks and emergencies have affected food security in specific countries as well as at the subnational level (see Box 12 for a discussion of food emergencies in countries requiring external assistance). Mechanisms to protect the most vulnerable populations from the effects of such shocks are often woefully inadequate. Consequently, vulnerable households may be forced to deal with shocks by selling productive assets, which are very difficult to rebuild, thus extending and prolonging the negative impacts of the crisis far beyond its immediate effect.

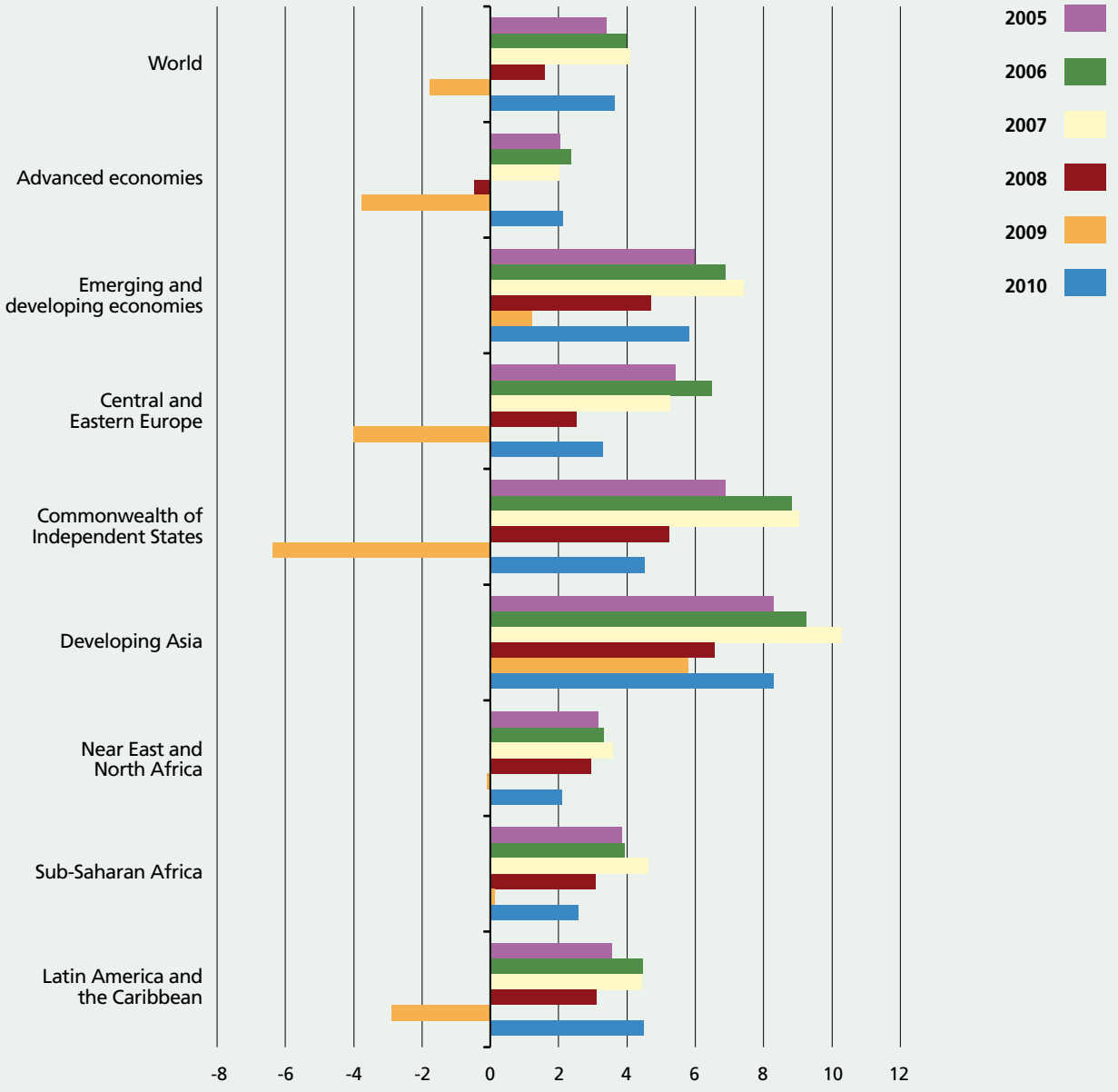
FOOD PRODUCTION, CONSUMPTION AND TRADE DURING THE CRISES

Recent trends in global food production, consumption and trade

According to data and estimates available by mid-2010,[27] growth in the global food production index (measured in constant prices) slowed to about 0.6 percent in 2009, following significant increases of 2.6 and 3.8 percent respectively in 2007 and 2008 – during the food price crisis (Figure 22, page 72). At the same time, global agriculture

[27] The indices of food production, consumption and trade in this section are based on data derived from FAO, *Food Outlook*, June 2010 (FAO, 2010k), updated to reflect production estimates in September 2010. Indices express production, consumption and trade in constant prices and have been computed using international reference commodity prices averaged during 2004–06. Production indices are net of feed and seedstock. Consumption indices are derived from estimates of food use. Commodities covered include wheat, coarse grains, rice, oilseeds, vegetable oils, meat and dairy products.

FIGURE 21
Average annual percentage change in GDP per capita at constant prices, 2005–2010



Notes: Figures from 2010 are projections based on data from the first three quarters of that year, incorporating the most recent estimates made in October.
Source: Author's calculations, using data from IMF, 2010a and IMF, 2010b.

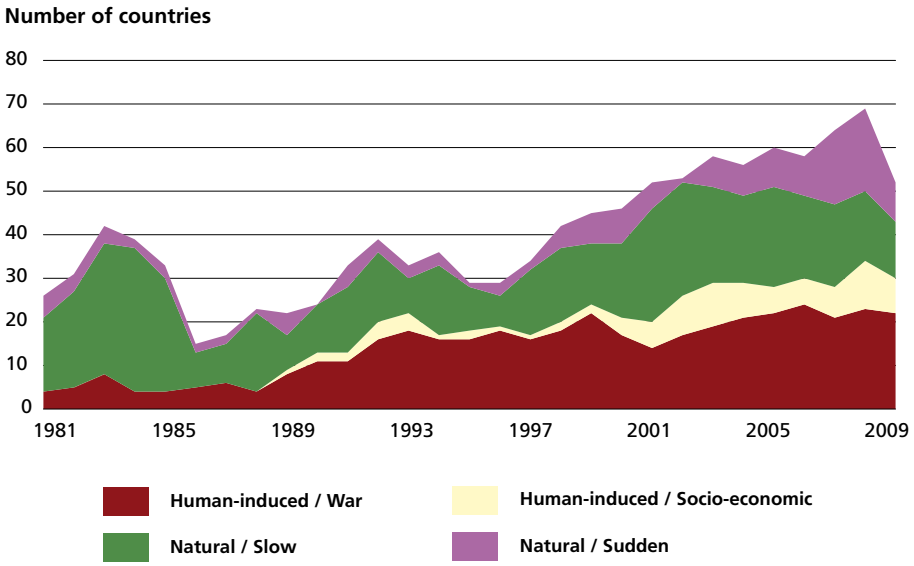
has been affected by other shocks, such as the drought in the Russian Federation during the summer of 2010, which caused the country's wheat production and exports to fall dramatically. Growth of only 0.8 percent is projected for 2010. Global food consumption, which had been increasing at over 2 percent per year (almost 1 percent in per capita terms), fell marginally in per capita terms during the economic recession in 2009. Growth in trade had been around the 4–6 percent range annually before the financial crisis; in 2009 it contracted and is projected to remain negative in 2010.

BOX 12
Food emergencies

Food crises affecting individual countries shock and destabilize the food security status of part of or the entire population (the newly food-insecure) and worsen it for those who were already food-insecure prior to the emergency (the chronically food-insecure). FAO's Global Information and Early Warning System on food and agriculture (GIEWS) monitors and disseminates information on countries in crisis requiring external assistance for food.[1] Food crises can be triggered by a number of factors – natural or human-induced. If the emergency is natural, it may be described as either sudden or slow-onset,[2] and if it is human-induced it may be the result of socio-economic problems[3] or war/conflict (see figure).

The total number of recorded emergencies in recent years is far higher than in the 1980s. Since the mid-1980s, the general trend has been towards an increase

Emergencies (by type) in countries requiring assistance, 1981 to 2009



Note: Data on emergencies do not include events taking place in 2010. At the time of writing, floods in Pakistan amounted to the world's largest humanitarian crisis ever, with up to 20 million people affected (about 18 percent of the country's population) and 6 million people in need of food assistance. The crisis was far larger than both the tsunami of 2004 and the Haitian earthquake of early 2010 combined.
Source: FAO.

Food consumption per capita by region

The most rapid growth in per capita consumption of basic foods in recent years has been recorded in Eastern Europe, followed by Latin America and the Caribbean, then Asia and the Near East and North Africa (Figure 23, page 72). In these regions, per capita consumption generally continued to rise even during the recession. An exception was Eastern Europe, which saw a decline of some 2 percent in 2009, when the region was particularly hard hit by the economic downturn.

Food consumption per capita has remained stagnant-to-falling in the developed regions of North America, Western Europe and Oceania. In sub-Saharan Africa, it rose between 2000 and 2007, but is estimated to have fallen somewhat on a per-capita basis since then. In this context, however, it is important to bear in mind that estimates provided in this analysis do not include all food items; roots and tubers, for example,

in the number of countries affected by emergencies. The number of human-induced emergencies seems to have increased the most, with war/conflict accounting for most of them. Over the past decade and a half, the frequency of sudden-onset natural disasters appears to have been on an upward trend.

From 1981 to 2009, the region with the largest number of countries experiencing emergencies was Africa, followed by Asia, Latin America and the Caribbean, Eastern Europe, Commonwealth of Independent States (CIS) and Oceania. The high incidence in Africa is explained in part by the relatively large number of countries in the region (44 are assessed by GIEWS), but also by civil unrest occurring in many countries as well as numerous slow-onset disasters. The number of African countries experiencing emergencies has ranged from around 15 to 25 annually, with the exception of the late 1980s, when the number was closer to 10. Of the 23 countries considered in the Asian region, the number experiencing emergencies has increased from around 5 annually during the period 1981–2002 to around 10 from 2003 to 2009. The number of countries affected in Latin America and the Caribbean is relatively small but has fluctuated over the time period, whereas in Eastern Europe and the CIS it has been decreasing.

Just as the effects of economic shocks on hunger do not disappear entirely when prices recover and economic growth resumes, the impacts of crises on food security may also persist long after relief and recovery efforts have begun. Countries in protracted crisis face a particularly difficult situation. According to *The State of Food Insecurity in the World 2010* (FAO, 2010g), 22 countries are currently considered to be in a state of protracted crisis. Protracted crisis situations are characterized by recurrent natural disasters and/or conflict, longevity of food crises, breakdown of livelihoods and insufficient institutional capacity to react to the crisis. Such countries need to be considered as a special category with special requirements in terms of interventions by the development community. (For a detailed discussion of the special situation of countries in protracted crisis, see FAO, 2010g.)

[1] Some countries that have consistently funded their own response to emergencies rather than seeking assistance from the international community are excluded from the information collected and disseminated by GIEWS.
[2] Natural sudden emergencies include sudden onset disasters such as floods, cyclones, hurricanes, earthquakes, volcanoes, and locusts. Slowly developing natural disasters such as drought, adverse weather, and transboundary pests and diseases are classified as natural slow emergencies.
[3] Examples of human-induced socio-economic emergencies are crises caused by commodity price collapses/spikes, loss of export markets, currency problems, land tenure problems and health-related crises.

which are widely consumed in sub-Saharan Africa, have not been included.

Food production by region

The global production estimates for the period 2006–10 presented in Figure 22 illustrate a global production response stimulated by high, then falling food prices. However, more detailed regional and national data underlying the aggregates present more complex patterns, reflecting the impact of other influences on agricultural production, including structural causes and weather-related factors. Generally, production in industrialized countries and the "BRIC" countries[28] responded most to the high crop prices of 2007 and 2008. However, over the last decade the strongest production growth was achieved by the LDCs and the "rest of the world" (Figure 24, page 73).

The two geographic regions that experienced the strongest growth in food

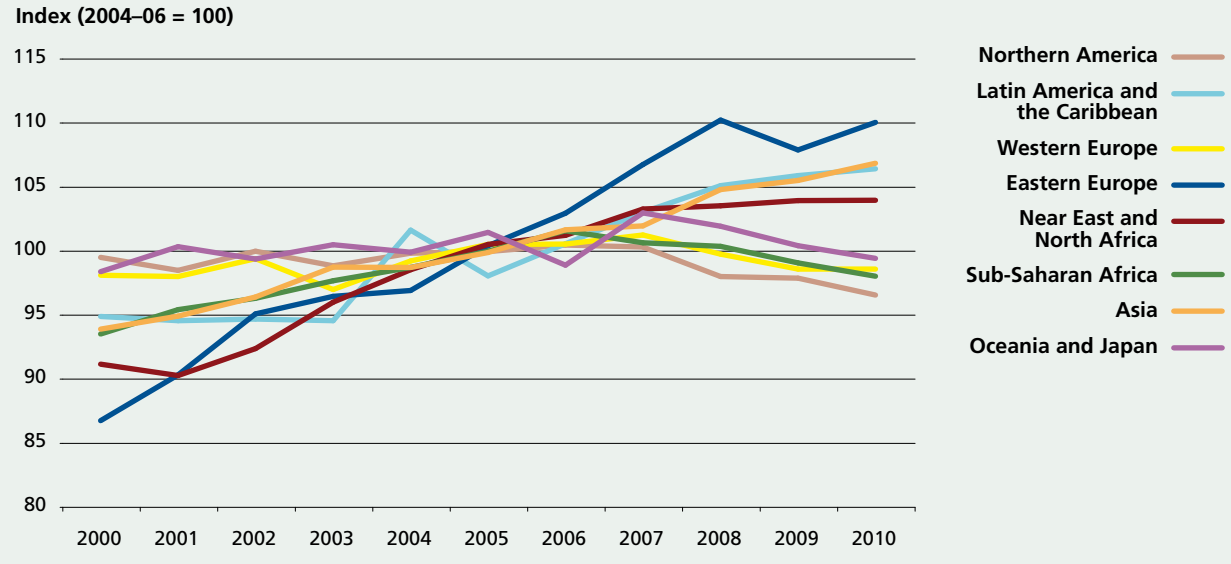
[28] Brazil, Russian Federation, India and China.

FIGURE 22
Annual growth in global food production, consumption and trade, 2006–2010



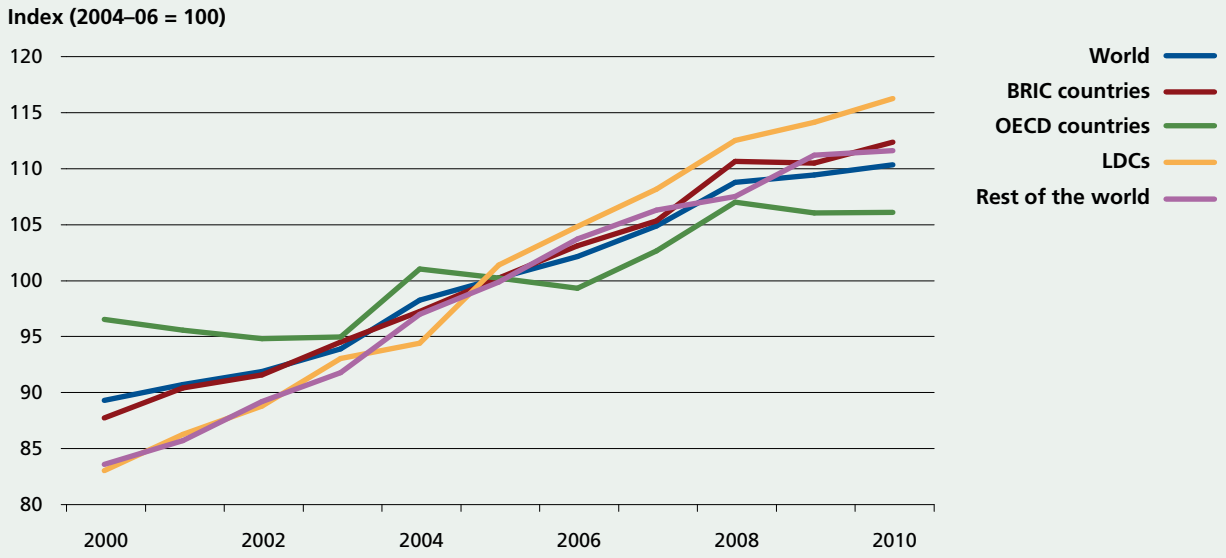
Note: Estimates are in constant US dollars (2004–2006 basis). Data for 2010 are projected; those for 2009 are provisional estimates.
Source: FAO.

FIGURE 23
Indices of per capita food consumption by geographic region, 2000–10



Note: Estimates are in constant US dollars (2004–2006 basis). Data for 2010 are projected; those for 2009 are provisional estimates.

FIGURE 24
Indices of food production by economic group



Note: Net of feed and seedstock. Estimates are in constant US dollars (2004–2006 basis). Data for 2010 are projected; those for 2009 are provisional estimates.
BRIC = Brazil, Russian Federation, India and China; LDCs = least-developed countries.
Source: FAO.

production over the last decade – Eastern Europe and Latin America and the Caribbean – had mixed experiences during the food price and financial crises (Figure 25). The Eastern European countries, after recording bumper crops in 2008, were unable to sustain potential growth in the subsequent years, and the 2010 drought led to substantially reduced levels of crop production in the region. Latin America and the Caribbean suffered weather-related production shortfalls in 2008 but recovered in 2009 and 2010. In Asia, growth in food production remained strong throughout the last decade, generally in the range of 2–4 percent per year, but recorded a slowdown in 2009 and 2010.

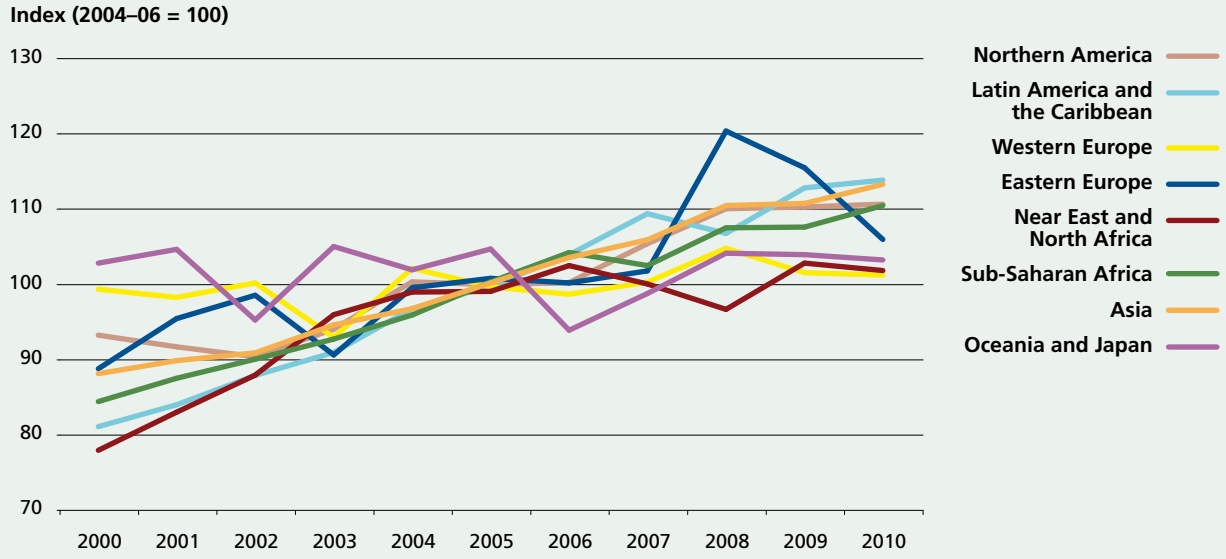
Production failed to grow in 2009 in sub-Saharan Africa, which had seen growth in the range of 3–4 percent per year over the previous decade; it is expected to expand moderately in 2010. The region registering the slowest growth in food production in recent years is Western Europe, where production in 2010 is projected to be only some 5 percent higher than in 2000. Production did increase in 2007 and 2008 under the effect of high prices and reduced set-aside requirements in the European Union (EU), but declined by around 2 percent in 2009 as a result of lower prices and unfavourable weather conditions.

Food exports by region

Food exports by nearly all regions, fell or stagnated in 2009 during the economic crisis (Figure 26). From 2000 to 2008, Eastern Europe saw cumulative export growth of around 350 percent; in 2008 it recorded a particularly high level of grain production. However, exports declined the following year and even more significantly as a result of drought in 2010.[29] Food exports from Western Europe declined, possibly as a result of the rise in the value of the euro as well as of successive policy reforms, including the reform of the EU Common Agricultural Policy. Strong export performances by countries in Latin America and the Caribbean, for which food exports nearly doubled over the decade, have made this region an increasingly important supplier of food to global markets. However, the

[29] The trade index values by region include trade within the region; this may affect conclusions about relative trade performance.

FIGURE 25
Indices of food production by region, 2000–10



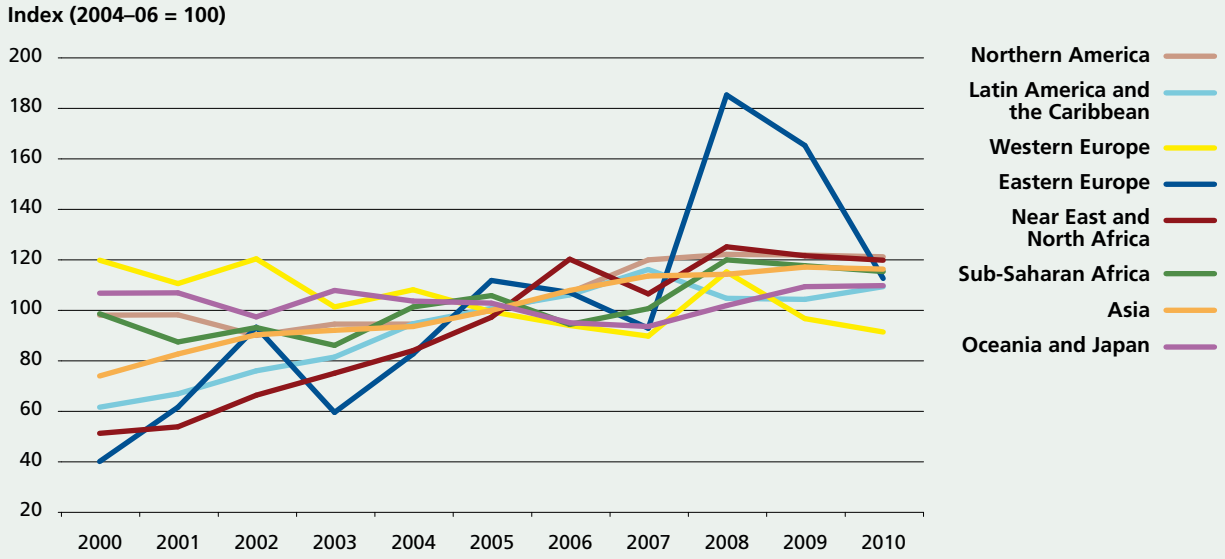
Note: Net of feed and seedstock. Estimates are in constant US dollars (2004–2006 basis). Data for 2010 are projected; those for 2009 are provisional estimates.
Source: FAO.

region's food exports stagnated in volume terms during the food price crisis and during the economic recession. Export volumes from North America grew by 24 percent over the decade, but growth may have been dampened by the rising use of domestic grains for biofuel production.

Food imports by region

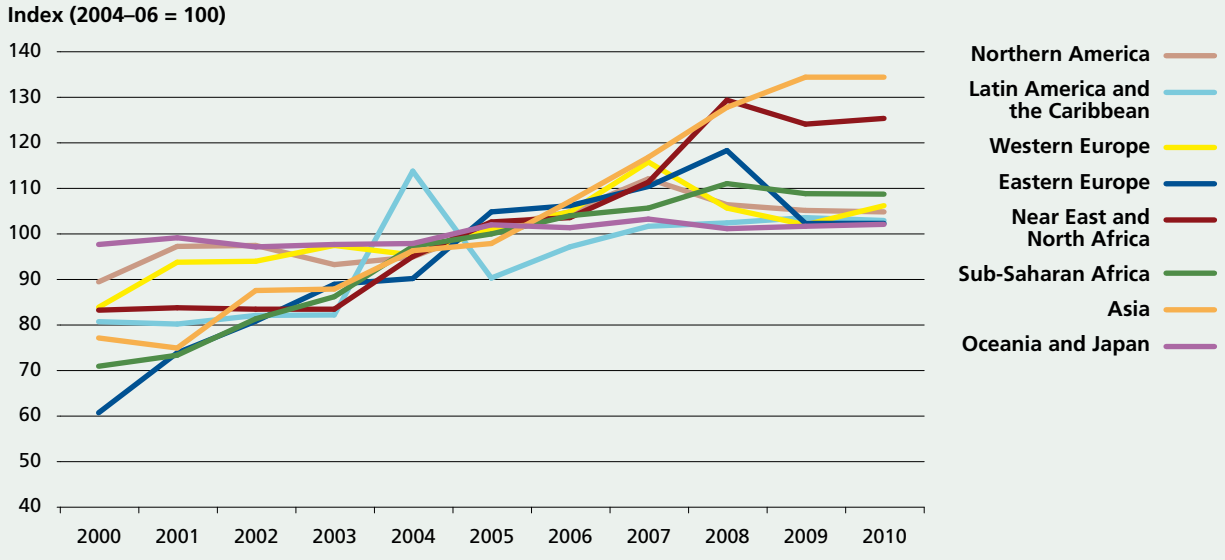
Food imports have been rising more rapidly in Asia than in any other region (Figure 27), increasing in volume terms by almost 75 percent between 2000 and 2010. Imports continued to grow through the food price crisis and also during the recession, as the region succeeded in sustaining relatively high rates of income growth. Food imports by countries in the Near East and North Africa have also grown, financed by growing oil revenues, but were considerably reduced during the recession. Imports by all other regions also grew significantly over time, with the exception of North America and Oceania, where they remained relatively stagnant. Sub-Saharan Africa's food import volumes increased during the first half of the decade, but the higher international prices during the food price crisis and the subsequent economic downturn translated into a decline in import volumes in 2008 and stagnating levels in 2009 and 2010. During the last decade, net food imports by sub-Saharan Africa, measured in constant prices, increased more than 60 percent, implying a further widening of the food trade deficit faced by this region over the past several decades, as population growth has outstripped growth in food production.

FIGURE 26
Indices of food export volumes by geographic region, 2000–10



Note: Estimates are in constant US dollars (2004–2006 basis). Data for 2010 are projected; those for 2009 are provisional estimates.
Source: FAO.

FIGURE 27
Indices of food import volumes by geographic region, 2000–10



Note: Estimates are in constant US dollars (2004–2006 basis). Data for 2010 are projected; those for 2009 are provisional estimates.
Source: FAO.

RECENT TRENDS IN AGRICULTURAL PRICES: A HIGHER PRICE PLATEAU, AND GREATER PRICE VOLATILITY

International prices for agricultural commodities

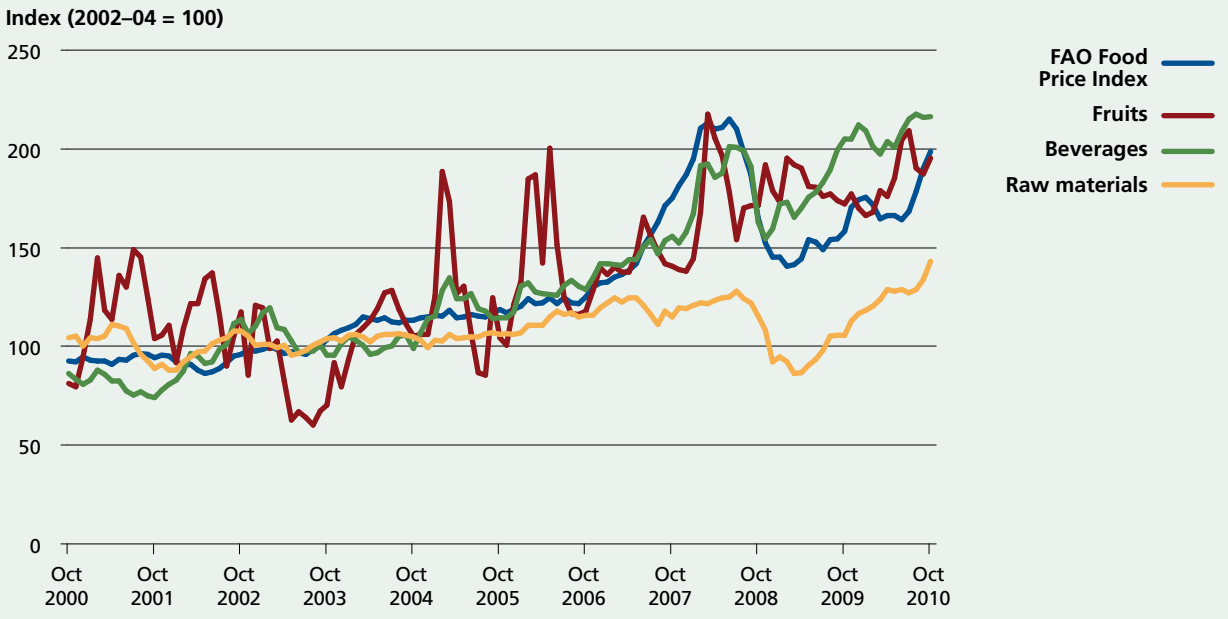
As discussed above, price developments in food commodity markets, especially those used to calculate the FPI (cereals, oils, dairy, meats and sugar), can have a critical impact on global food security. Close monitoring of market developments is therefore crucial. This section reviews recent developments in international and domestic food markets, discusses the current situation and identifies major issues of concern for future food security.

During the food price crisis of 2007–08 the FPI increased sharply (Figure 28). At the time of writing, the most recent data shows the FPI to have increased again from June through October 2010. In fact, by October 2010, the FPI was just 8 percent below its peak in June 2008.

Among the commodities included in the FPI, prices for cereals, oils and dairy products showed a sharp increase during the 2007–08 food price crisis and have shown substantial and highly correlated volatility since 2006 (Figure 29). More recently, from June through October 2010, prices of cereals, oils and sugar have increased, largely explaining the increase in the FPI over the same period. The volatility of sugar prices, particularly since 2005, has been even more pronounced than that of the other commodities contained in the FPI. Meat prices have fluctuated little in comparison with those of cereals, oils, dairy products and sugar.

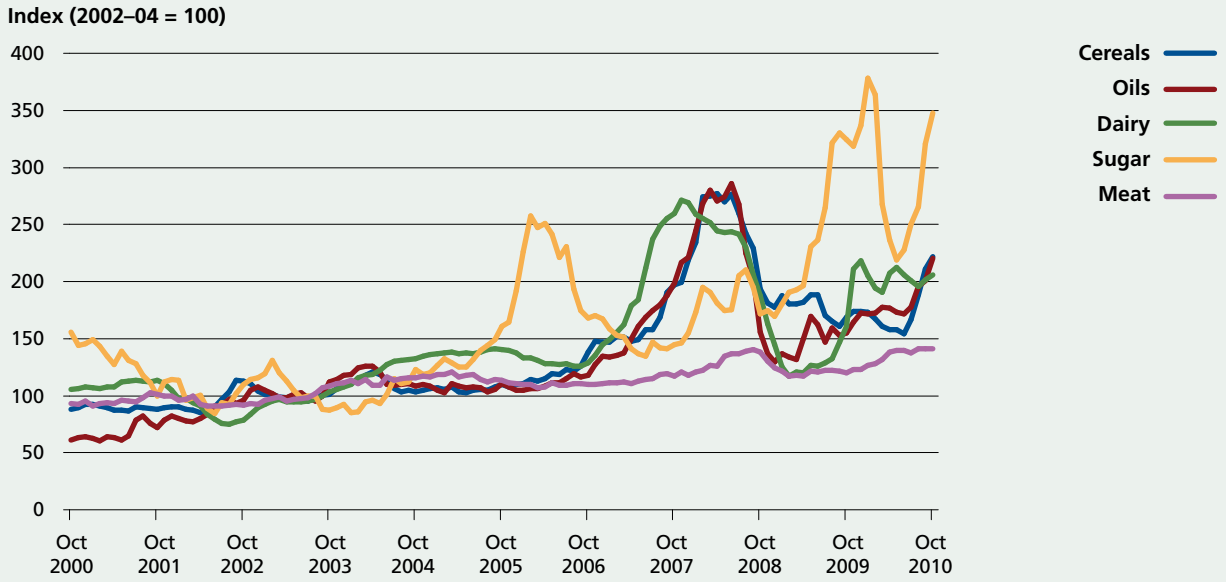
Among other agricultural commodities that are not part of the FPI (Figure 28), international fruit prices moved closely together with those of the FPI, exhibiting a spike during the food price crisis and a decline during the subsequent financial crisis. The price of beverage products moved less closely with prices of commodities contained in the FPI. Raw material prices were generally not affected by the rise in other commodity prices during the food price crisis but decreased significantly in response to the economic downturn in 2009 before moving upwards again in response to economic recovery, reflecting the high income elasticity of demand for this group of commodities.

FIGURE 28
FAO Food Price Index and indices of other commodities (fruits, beverages and raw materials), October 2000–October 2010



Source: FAO.

FIGURE 29
Indices of prices of commodities included in the FAO Food Price Index (cereals, oils, dairy, meat and sugar), October 2000–October 2010



Sources: FAO and IMF.

Although prices of basic commodities have declined from the peak levels they attained during the food price crisis, by the third quarter of 2010 prices of all commodities in the FPI remained significantly higher than those preceding the crisis. According to projections in the *OECD-FAO Agricultural Outlook 2010–2019* (OECD-FAO, 2010), real commodity prices over the next decade are expected to be, on average, higher than they were in the period 2000–10. Factors underlying the projected higher agricultural commodity prices include higher production costs, increased demand by emerging and developing countries and growing production of biofuels from agricultural feedstocks.

Domestic food prices in developing countries

Last year's edition of this report discussed price transmission from international to domestic markets (FAO, 2009a). After the food price crisis, domestic commodity prices in many countries were slow in moving downwards, despite the rapid fall in international prices, suggesting a slow or low degree of transmission to domestic consumers. This phenomenon created a double threat to the food security of poor consumers, as domestic food prices remained high while income growth slowed or turned negative.

In 2010, this double threat seems to have diminished relative to the preceding period, particularly as many emerging and developing countries appeared to have recovered from the economic slowdown earlier and more strongly than expected (See IMF, 2010c). Moreover, the most recent available data on domestic prices indicate that cereal prices in developing countries have declined significantly from their peaks in 2008, although at the time of writing the price of wheat on international markets had again risen sharply. Data on cereal wholesale prices in 74 developing countries collected by GIEWS (FAO, 2010j) show that, by early 2010, such prices had fallen in nominal terms relative to their peak values in 90 percent of the countries. After adjusting for inflation, more than 98 percent of price quotes had fallen from their peaks by the start of 2010. Nevertheless, although domestic prices in developing countries have declined, they remain high compared with before the food price crisis. Indeed, in early 2010, more

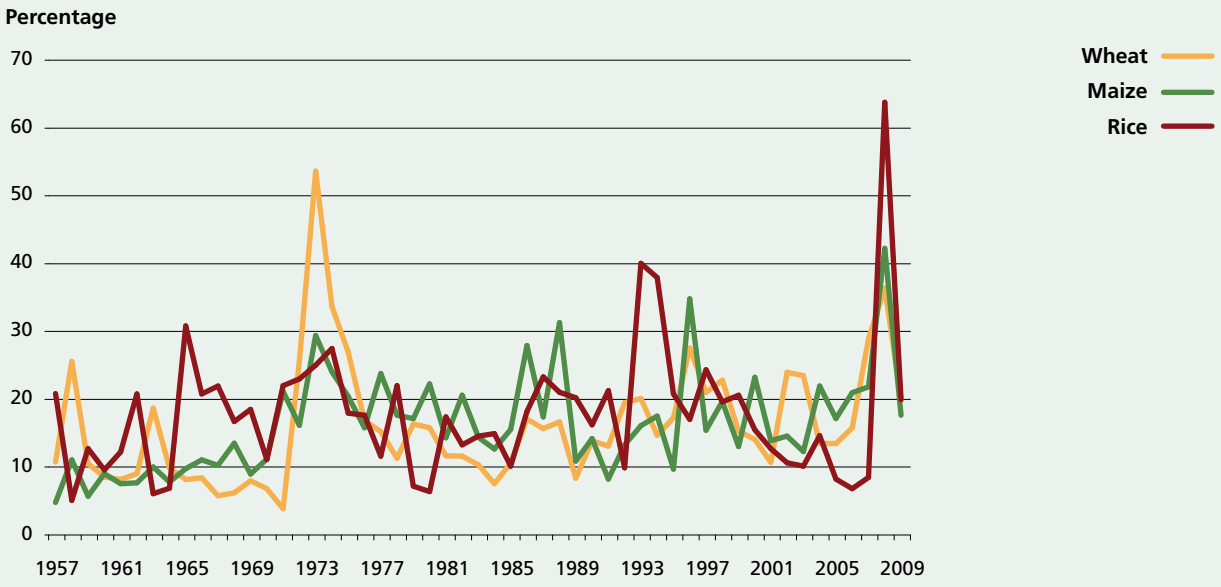
than 80 percent of the inflation-adjusted wholesale cereal price quotes remained above their average level in 2006 – the year prior to the food price crisis.

Growing concerns over price volatility

The extreme variability of prices of basic food commodities over the most recent period has caused considerable concern. Episodes of high prices are detrimental to food security, and the high uncertainty associated with price volatility affects producer viability and may lead to reduced agricultural investments. Data on price volatility over a longer period (starting in 1957), show that high price volatility such as that recently experienced is not far out of line with past experiences (Figure 30). Indeed, periods of high price volatility are not new to agriculture, but there are fears that price volatility may be increasing.

Increased disquiet over greater volatility of food prices is related to the emergence of new factors contributing to it. One important factor is the expected increase in severe weather events as a consequence of climate change, which could lead to increased fluctuations in agricultural and food production. A further source of price volatility is the expanding production of biofuels based on agricultural feedstocks, which could tighten the link between prices of agricultural commodities, especially maize, and developments and conditions in international energy markets, implying an increased transmission of fluctuations in energy prices onto markets for agricultural and food commodities. The close relationship between the production costs of ethanol from maize and of petrol from crude oil is illustrated in Figure 31. This also implies that prices for crude oil and for maize now appear to be closely related. In the light of current uncertainties surrounding future oil prices and their impact both on demand for biofuels and on agricultural input markets (e.g. markets for fertilizers, mechanization, and transportation), concerns over increased agricultural price volatility from these new sources appear to have some justification. Furthermore, higher real crop prices have also recently induced higher production in some areas where yield volatility is also higher, such as the grain-producing areas around the Black Sea. To the extent that

FIGURE 30
Historic annualized volatility of international grain prices



Note: Some price variability can be predicted (e.g. seasonal variation, business cycles or other trending behaviour). The figure shows the coefficient of variation of prices after the predictable component has been removed from the observed values (for explanation, see OECD-FAO, 2010, p. 57, footnote 5). Values close to zero indicate low volatility, higher values denote greater volatility.

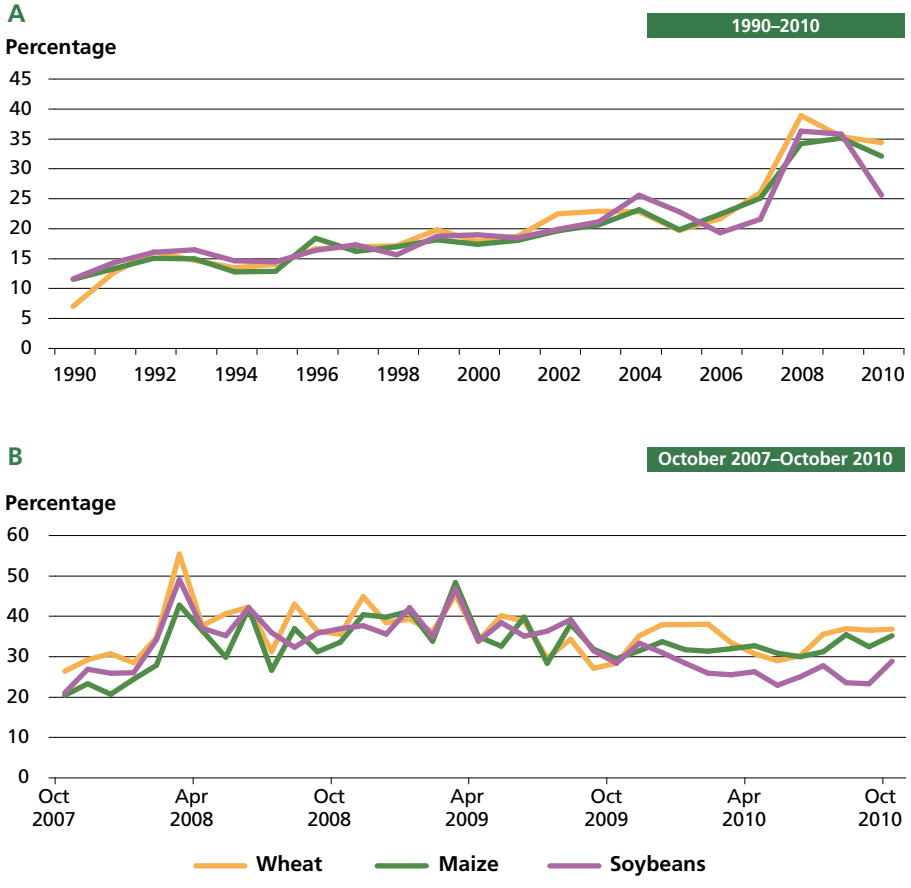
Source: OECD-FAO, 2010.

BOX 13
Implied volatility as a measure of uncertainty

How organized commodity exchanges perceive and value uncertainty is important for future decisions on production, trade and investment. Implied volatility represents the market's expectation of how much the price of a commodity is likely to fluctuate in the future. It is derived from the prices of derivative contracts, namely options, which are priced on the basis of the market's estimates of future prices as well as the uncertainty surrounding these estimates. The more divergent are traders' expectations about future prices, the higher the underlying uncertainty and thus the implied volatility. (For a more detailed discussion of the concept and the methodology, see FAO, 2010k.)

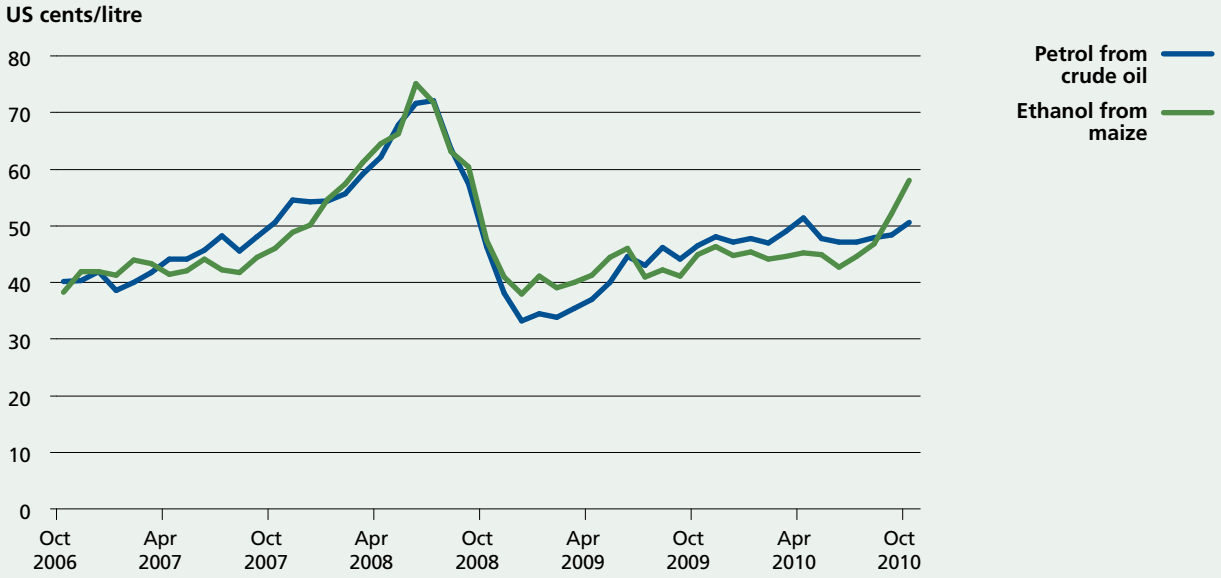
Implied volatilities for wheat, maize and soybeans since 1990 are presented in Figure A and movement over the period October 2007–October 2010 is presented in Figure B. Market perceptions of volatility as estimated by the implied price volatility have increased systematically, with a sharp peak in 2008. In the aftermath of the 2007–08 market turmoil, implied volatilities fell as markets began to stabilize. However, around mid-2010 implied volatility started moving upwards again when doubts began to emerge over Russia's ability to meet grain export commitments, followed by similar concerns over United States maize prospects and expected demand outstripping soybean supply.

Implied price volatility of wheat and maize



Source: FAO.

FIGURE 31
Co-movement of energy production costs: ethanol from maize versus petrol from crude oil, October 2006–October 2010



Notes and sources: FAO calculation using ethanol production, simple cost budgets and IMF commodity price statistics.
The petroleum equivalent is the per-litre price of crude oil adjusted to an ethanol energy basis, plus a cost adjustment for processing to gasoline. Ethanol from maize is the cost of producing ethanol, net of by-product revenues, on a per-litre basis. Source prices are Brent Crude oil and US Gulf #2 Maize.

these areas increase their export market shares, greater supply volatility from these regions may affect price volatility.

A highly relevant factor in recent times has been the uncoordinated national policy responses to fluctuations in international prices, which may exacerbate market volatility. The impact of such policies was discussed in last year's edition of this report (FAO, 2009a). A further issue is the role of speculation in recent market volatility; this has been surrounded by considerable controversy, and further research evidence on the topic is needed.

Summary of the current situation and future prospects for agricultural markets

In the aftermath of the food price and financial crises, global food and agricultural commodity markets appear to be characterized both by higher price levels and increased uncertainty. During the crises, per capita food consumption decreased marginally in sub-Saharan Africa as well as in North America, Oceania and Western Europe, but has continued to grow in other regions, although more slowly in Eastern Europe. Despite some fluctuations during the crises, food production increased over the last decade in all regions except Western Europe, as well as Japan and Oceania. With the exception of Eastern Europe and Latin America and the Caribbean, which represent key future food suppliers, supplies from traditional exporters appear to be increasing more slowly than in the past. Food imports decreased as a result of the price and financial crises in all regions except Asia and the Near East and North Africa.

Commodity prices appear to be on a higher plateau and are projected to remain at levels above those of the pre-crisis period while markets have remained highly volatile. Market volatility and its possible implications for food security have become increasingly problematic for policy-makers worldwide. In an environment of increased uncertainty, policy responses to the situation will be a critical determinant of future market developments and their possible implications for food security.

BOX 14
Price volatility and FAO's Intergovernmental Groups on Grains and Rice

The extraordinary joint intersessional meeting of FAO's Intergovernmental Group on Grains and Intergovernmental Group on Rice held in Rome on 24 September 2010 recognized that unexpected price hikes and volatility are amongst the major threats to food security. They pointed to a number of root causes that need to be addressed:

- the lack of reliable and up-to-date information on crop supply and demand and export availability;
- insufficient market transparency at all levels, including in relation to futures markets;
- growing linkages with outside markets, in particular the impact of "financialization" on futures markets;
- unexpected changes triggered by national food-security situations;
- panic buying and hoarding.

Source: FAO, 2010l.

CONCLUSIONS

The world food-price crisis, followed by the global financial crisis and economic recession, pushed the number of undernourished people in the world to unprecedented levels in 2008 and 2009. Estimates indicate that the number of undernourished people declined in 2010, as food prices fell from their peak levels and global economic conditions began to improve. However, levels of undernourishment remain very high by historical standards, and concerns both for the world economy and for world agriculture continue to be at the top of the international policy agenda. In October 2010, the IMF indicated that "macroeconomic recovery is proceeding broadly as expected, although downside risks remain elevated" (IMF, 2010b, p. 1). At the same time, the sudden rise in cereal prices from June through October 2010 raised fears of a new food-price crisis.

Whatever the short-term outlook for the world economy, agriculture and food security, a number of lessons with long-term implications appear to have emerged or to have been confirmed from the developments of the past few years.

The experiences of the food price and financial crises have provided a sharp reminder of the vulnerability of world food security to shocks in the global food system and the world economy and have demonstrated how rapidly an already unacceptable level of food insecurity in the world can deteriorate in the face of such events. This has underscored the importance of appropriate safety nets and social programmes to protect the food-insecure from the immediate impact of shocks like these, as well as the critical and urgent need to boost the productive capacity of developing countries and to enhance their resilience to shocks.

The food price crisis has highlighted a series of concerns specific to the agriculture sector and agricultural markets. First, the most recent projections by FAO and OECD indicate that, although international prices fell fairly rapidly from the peak levels attained during the global food-price crisis, they remain higher than they were before the crisis and it appears that higher food prices are here to stay. Agriculture faces higher production costs, increasing demand from rapidly growing countries in developing regions and expanding biofuel production. As a result, prices are projected to increase over the next decade and to continue to be at levels, on average, above those of the past decade. There is by now a widely recognized need to significantly increase investments in agriculture in order to generate environmentally sustainable productivity increases and expand production, while at the same time enhancing the contribution of agriculture to economic growth and poverty alleviation.

A second source of concern is the recent turbulence in international agricultural markets and the risk of increased price volatility. Price volatility has always been a feature of agricultural markets; however, a number of trends appear to be accentuating this phenomenon. Climate change may

be leading to more frequent and extreme weather events and to the consequent risk of shocks to agricultural markets. Expanding production of biofuels based on agricultural commodities will make agricultural markets much more dependent on developments in global energy markets.

A specific "human-induced" threat to market stability is that of uncoordinated national policy responses to increasing food prices. Because such measures are based exclusively on concerns about domestic food security, with little regard for their effects on trading partners, they may exacerbate international market volatility and jeopardize global food security.

Given the importance of international food commodity markets for global food security and hunger-reduction efforts, there is a need to address issues of governance on global agricultural markets with a view to confronting the problem of price volatility and avoiding counter-productive "beggar-thy-neighbour" policy responses. Necessary steps would include improved regulation of markets, greater market transparency, improved and timely statistics on food commodity markets, establishment of an appropriate level of emergency stocks and provision of adequate and appropriate safety nets. The recent food and financial crises, the uncoordinated policy responses and continuing fears over global food-market turmoil have underscored the urgent need for action by the international community.

Part III

STATISTICAL ANNEX




Part III

Notes on the annex tables

Symbols

The following symbols are used in the tables:

..	= data not available
0 or 0.0	= nil or negligible
blank cell	= not applicable
(A)	= FAO estimate

Numbers displayed in the tables might be slightly different from the ones obtained from the original data sources because of rounding or data processing. To separate decimals from whole numbers a full point (.) is used.

Technical notes

Table A1: Total population, female share of population and rural share of population in 1980, 1995 and 2010

Source: FAO, 2010b.

Total population

The de facto population in a country, area or region as of 1 July of the year indicated. Figures are presented in the thousands.

Female share of population

The total number of women divided by the total population and multiplied by 100.

Rural share of population

The de facto population living in areas classified as rural (according to the criteria used by each country) divided by the total population and multiplied by 100.

Table A2: Female share of national, rural and urban population aged 15–49, most recent and earliest observations

Source: United Nations, 2008.

Data presented are not directly comparable among countries because they vary in terms of year(s) of data collection. For details, refer to United Nations (2008).

Rural/urban

The population classified as rural or urban according to criteria used by each country.

Table A3: Economically active population, female share of economically active population and agricultural share of economically active women in 1980, 1995 and 2010

Source: FAO, 2010b.

Economically active population

The number of all employed and unemployed persons (including those seeking work for the first time). The term covers employers; self-employed workers; salaried employees; wage earners; unpaid workers assisting in a family, farm or business operation; members of producers' cooperatives; and members of the armed forces. The economically active population is also referred to as the labour force.

Female share of economically active population

The share of all employed and unemployed persons who are female (including those seeking work for the first time). The term covers female employers; self-employed workers; salaried employees; wage earners; unpaid workers assisting in a family, farm or business operation; members of producers' cooperatives; and members of the armed forces. The economically active female population is also referred to as the female labour force.

Agricultural share of economically active women

The share of the economically active female population who are engaged in or seeking work in agriculture, hunting, fishing or forestry.

Table A4 : Economically active population, agricultural share of economically active population and female share of economically active in agriculture in 1980, 1995 and 2010

Source: FAO, 2010b.

Economically active population

See notes for Table A3.

Agricultural share of the economically active population

The share of the economically active population who are engaged in or seeking work in agriculture, hunting, fishing or forestry.

Female share of economically active in agriculture

The share of the economically active population in agriculture who are women.

Table A5: Share of households in rural areas that are female-headed, most recent and earliest observations, and total agricultural holders and female share of agricultural holders, most recent observations

Sources: Measure DHS/ICF Macro, 2010 (columns 1 and 2), and FAO, 2011 (forthcoming) (columns 3 and 4).

Households

Values are based on *de jure* members, i.e. usual residents.

Agricultural holder

The definition of agricultural holder varies from country to country, but widely refers to the person or group of persons who make the

major decisions regarding resource use and exercise management control over the agricultural holding operation. The agricultural holder has technical and economic responsibility for the holding and may undertake all responsibilities directly, or delegate responsibilities related to the management of day-to-day work. The agricultural holder is often, but not always, the household head.

Symbols used

(B) Indicates that the source is FAO (2010f).
(1) Data are from the Northeast Region only.
(2) In Kyrgyzstan and Lebanon the landless holders are without arable land (rather than without any land).
(3) In the case of Viet Nam, farm owners (rather than agricultural holders) were counted.
(4) Data were collected for ever-married women aged 10-49. Women age 10–14 were removed from the data set and the weights recalculated for the 15–49 age group.
(5) Data were collected for women aged 10-49 and indicators were calculated for women 15-49.
(6) Data were collected for women aged 13-49 and indicators were calculated for women 15-49.
(7) For Austria, Belgium, Denmark, Finland, Germany, Greece, Ireland, Luxembourg, Netherlands, Norway, Portugal and Sweden, holders include "holders without agricultural land".

Table A6: Share of adult population with chronic energy deficiency (CED – body mass index less than 18.5) by sex and share of children underweight by sex, residence and household wealth quintile, most recent observations

Source: WHO, 2010.

Share of women with CED

The share of adult women who have a body mass index (BMI) (kg/m^2) less than 18.5.

Share of men with CED

The share of adult men who have a body mass index (BMI) (kg/m^2) less than 18.5.

Share of children underweight

Underweight prevalence, among children under five years of age (0–59 months unless otherwise noted) is estimated as the share of those children whose weight is below minus two standard deviations from the median weight for age of the National Center for Health Statistics (NCHS)/WHO/Centers for Disease Control and Statistics (CDC) international standard reference population.

Residence

Criteria used to define rural and urban are often country-specific; data in this table are based on national definitions.

Household wealth quintile

Household ownership of assets and access to services is measured and principle components analysis is used to calculate an index, the value of which is assigned to each member of the household. The index

scores for the entire population are then arranged in ascending order and the distribution is divided at the points that form the five 20 percent cohorts.

Symbols used and additional notes on the data

(C) Indicates no observations available for both men and women from the same year for chronic energy deficiency (CED).
For share of underweight children, observations are for children aged 0–59 months unless indicated by:
(1) 6–59 months, (2) 0–71 months, (3) 3–59 months (4) 6–39 months and (5) 24–59 months.

The national BMI data displayed in this table are empirical and it has been verified that they apply internationally recommended BMI cut-off points. However, it should be noted the data presented are not directly comparable because they vary in terms of sampling procedures, age ranges and the year(s) of data collection. For details, refer to WHO, 2010.

Country groups and aggregates

The tables in this publication contain country group composites for all indicators for which aggregates can be calculated. These are generally weighted averages that are calculated for the country groupings as described below. In general, an aggregate is shown for a country grouping only when data are available for at least half the countries and represent at least two-thirds of the available population in that classification.

Country and regional notes

Regional and subregional groupings, as well as the designation of developing and developed regions, follow the standard country or area codes for statistical use developed by the United Nations Statistics Division. They are available at http://unstats.un.org/unsd/methods/m49/m49regin.htm

Whenever possible, data from 1992 or later are shown for the individual countries of Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. Data before 1992 are shown under the Union of Soviet Socialist Republics ("USSR" in the table listings).

Separate observations are shown for Belgium and Luxembourg whenever possible.

Unless otherwise noted, data for China include data for Hong Kong Special Administrative Region of China, Macao Special Administrative Region of China, and Taiwan Province of China. Data for China, mainland do not include those areas.

Data are shown when possible for the individual countries formed from the former Czechoslovakia – the Czech Republic and Slovakia. Data before 1993 are shown under Czechoslovakia.

Data are shown for Eritrea and Ethiopia separately, if possible; in most cases before 1992 data on Eritrea and Ethiopia are aggregated and presented as Ethiopia PDR.

Data for Yemen refer to that country from 1990 onward; data for previous years refer to aggregated data of the former People's Democratic Republic of Yemen and the former Yemen Arab Republic.

Data for years prior to 1992 are provided for the former Yugoslavia ("Yugoslavia SFR" in the table listings). Observations from the years 1992 to 2006 are provided for the individual countries formed from the former Yugoslavia; these are Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, and Slovenia, as well as Serbia and Montenegro. Observations are provided separately for Serbia and for Montenegro after the year 2006 when Serbia and Montenegro separated and became two independent states.

TABLE A1
Total population, female share of population and rural share of population in 1980, 1995 and 2010

	Population								
	Total (Thousands)			Female share (% of total)			Rural share (% of total)		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
WORLD	**4 428 081**	**5 713 069**	**6 908 685**	**49.7**	**49.6**	**49.6**	**60.9**	**55.3**	**49.4**
COUNTRIES IN DEVELOPING REGIONS	**3 299 983**	**4 538 389**	**5 671 456**	**49.0**	**49.1**	**49.2**	**70.7**	**62.4**	**54.7**
AFRICA	**482 232**	**726 284**	**1 033 043**	**50.3**	**50.2**	**50.1**	**72.1**	**65.8**	**59.9**
Sub-Saharan Africa	**389 751**	**593 182**	**863 315**	**50.4**	**50.4**	**50.2**	**76.1**	**69.3**	**62.5**
Eastern Africa	**143 491**	**219 874**	**327 187**	**50.6**	**50.6**	**50.4**	**85.3**	**80.4**	**76.2**
Burundi	4 130	6 167	8 519	51.9	51.3	50.9	95.7	92.8	89.0
Comoros	384	615	890	49.7	49.8	49.9	76.8	71.7	71.8
Djibouti	340	624	879	50.3	50.2	50.1	27.9	20.2	11.9
Eritrea		3 206	5 224		51.2	50.8		83.4	78.4
Ethiopia		56 983	84 976		50.3	50.2		86.1	82.4
Ethiopia PDR [A]	37 878			50.4			89.3		
Kenya	16 261	27 492	40 863	50.2	50.2	50.0	84.3	81.0	77.8
Madagascar	8 604	13 121	20 146	49.7	50.0	50.2	81.5	74.2	69.8
Malawi	6 215	10 144	15 692	51.6	50.6	50.3	90.9	86.7	80.2
Mauritius	966	1 129	1 297	50.7	50.1	50.5	57.7	56.7	57.4
Mozambique	12 138	15 945	23 406	51.1	52.3	51.3	86.9	73.8	61.6
Réunion	506	664	837	51.2	51.1	51.3	46.6	13.9	6.0
Rwanda	5 197	5 440	10 277	52.0	52.1	51.5	95.3	91.7	81.2
Seychelles	66	76	85	50.0	50.0	49.4	50.0	50.0	44.7
Somalia	6 434	6 521	9 359	50.6	50.5	50.4	73.2	68.6	62.5
Uganda	12 655	20 954	33 796	50.2	50.2	49.9	92.5	88.3	86.7
United Republic of Tanzania	18 661	29 972	45 040	50.6	50.5	50.1	85.4	79.5	73.6
Zambia	5 774	9 108	13 257	50.3	50.3	50.1	60.2	62.9	64.3
Zimbabwe	7 282	11 713	12 644	50.3	50.6	51.6	77.6	68.3	61.7
Middle Africa	**53 793**	**86 423**	**128 908**	**50.9**	**50.6**	**50.4**	**71.0**	**65.2**	**56.9**
Angola	7 854	12 539	18 993	50.8	50.7	50.7	75.7	56.0	41.5
Cameroon	9 080	14 054	19 958	50.4	50.3	50.0	68.1	54.7	41.6
Central African Republic	2 269	3 335	4 506	50.9	50.9	50.9	66.1	62.8	61.1
Chad	4 608	7 128	11 506	50.8	50.5	50.3	81.2	78.1	72.4
Congo	1 815	2 782	3 759	50.3	50.2	50.1	52.1	43.6	37.9
Democratic Republic of the Congo	27 170	44 921	67 827	51.1	50.6	50.4	71.3	71.6	64.8
Equatorial Guinea	220	452	693	51.4	50.7	50.4	72.3	61.1	60.3
Gabon	682	1 084	1 501	50.7	50.5	50.0	45.3	24.6	14.0
Sao Tome and Principe	95	128	165	50.5	50.0	50.3	66.3	51.6	37.6
Northern Africa	**112 990**	**163 943**	**212 920**	**49.8**	**49.7**	**49.8**	**59.9**	**53.6**	**48.3**
Algeria	18 811	28 265	35 423	49.8	49.6	49.5	56.5	44.0	33.5

TABLE A1 *(cont.)*

	Population								
	Total *(Thousands)*			Female share *(% of total)*			Rural share *(% of total)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Egypt	44 433	63 858	84 474	49.9	49.6	49.7	56.1	57.2	57.2
Libyan Arab Jamahiriya	3 063	4 834	6 546	46.6	47.6	48.4	29.9	24.0	22.1
Morocco	19 567	26 951	32 381	50.0	50.3	50.9	58.8	48.3	43.3
Sudan	20 509	30 841	43 192	49.9	49.7	49.6	80.0	68.7	54.8
Tunisia	6 457	8 935	10 374	49.3	49.5	49.7	49.4	38.5	32.7
Western Sahara	150	259	530	46.0	47.9	47.2	22.7	12.7	18.1
Southern Africa	**32 972**	**47 240**	**57 968**	**50.5**	**50.9**	**50.7**	**55.3**	**48.6**	**41.2**
Botswana	985	1 550	1 978	51.2	50.6	49.9	83.6	51.0	38.9
Lesotho	1 296	1 726	2 084	53.9	53.4	52.7	88.5	83.0	73.1
Namibia	1 013	1 620	2 212	51.2	51.1	50.7	74.9	70.2	62.0
South Africa	29 075	41 375	50 492	50.3	50.7	50.7	51.6	45.5	38.3
Swaziland	603	969	1 202	52.6	52.0	51.0	82.3	77.0	74.5
Western Africa	**138 986**	**208 804**	**306 060**	**50.1**	**50.0**	**49.9**	**72.8**	**64.1**	**55.4**
Benin	3 560	5 723	9 212	51.6	50.3	49.5	72.7	63.3	58.0
Burkina Faso	6 862	10 127	16 287	50.5	50.6	50.0	91.2	84.9	79.6
Cape Verde	289	398	513	54.3	52.8	52.0	76.5	51.3	38.8
Côte d'Ivoire	8 419	14 981	21 571	48.0	48.2	49.1	63.1	58.6	49.9
Gambia	616	1 085	1 751	50.6	50.5	50.4	71.6	56.1	41.9
Ghana	11 026	17 245	24 333	49.5	49.4	49.3	68.8	59.9	48.5
Guinea	4 628	7 478	10 324	49.8	49.5	49.5	76.4	70.5	64.6
Guinea-Bissau	836	1 166	1 647	50.6	50.5	50.5	82.4	70.2	70.0
Liberia	1 910	1 945	4 102	50.7	50.6	50.3	64.8	50.0	38.5
Mali	7 183	9 549	13 323	49.9	50.5	50.6	81.5	74.5	66.7
Mauritania	1 525	2 270	3 366	49.8	49.7	49.3	72.7	60.2	58.6
Niger	5 922	9 302	15 891	50.2	50.4	49.9	86.6	84.2	83.3
Nigeria	74 523	110 449	158 259	50.3	50.2	49.9	71.4	61.1	50.2
Saint Helena	5	5	4	60.0	60.0	50.0	60.0	60.0	75.0
Senegal	5 636	8 660	12 861	49.4	50.1	50.4	64.2	60.2	57.1
Sierra Leone	3 261	3 989	5 836	51.4	51.5	51.3	70.9	65.8	61.6
Togo	2 785	4 432	6 780	50.7	50.6	50.5	75.3	66.8	56.6
ASIA EXCLUDING JAPAN	**2 450 128**	**3 322 591**	**4 039 744**	**48.6**	**48.7**	**48.7**	**64.9**	**57.4**	**50.7**
Central Asia		**53 399**	**61 349**		**50.8**	**50.9**		**57.0**	**57.7**
Kazakhstan		15 926	15 753		51.7	52.4		44.1	41.5
Kyrgyzstan		4 592	5 550		50.8	50.6		63.7	63.4
Tajikistan		5 775	7 075		50.0	50.6		71.1	73.5
Turkmenistan		4 187	5 177		50.6	50.7		54.7	50.5
Uzbekistan		22 919	27 794		50.4	50.3		61.6	63.1

TABLE A1 *(cont.)*

	Population								
	Total *(Thousands)*			Female share *(% of total)*			Rural share *(% of total)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Eastern Asia excluding Japan	**1 042 581**	**1 286 233**	**1 436 956**	**48.6**	**48.4**	**48.2**	**78.0**	**66.2**	**53.2**
China[A]	986 220	1 217 595	1 361 763	48.5	48.3	48.1	80.0	68.3	54.8
China, Hong Kong SAR	5 039	6 214	7 069	47.9	50.3	52.6	8.5	0.0	0.0
China, Macao SAR	252	412	548	49.2	51.7	52.4	1.6	0.0	0.0
China, mainland	963 123	1 189 612	1 330 840	49.4	49.2	48.9	81.8	69.9	56.0
Democratic People's Republic of Korea	17 239	21 717	23 991	51.3	50.9	50.6	43.1	40.9	36.6
Mongolia	1 663	2 270	2 701	49.9	50.0	50.6	47.9	43.2	42.5
Republic of Korea	37 459	44 651	48 501	49.9	49.9	50.5	43.3	21.8	18.1
Southeastern Asia	**355 774**	**479 834**	**589 616**	**50.2**	**50.2**	**50.2**	**74.5**	**64.7**	**51.8**
Brunei Darussalam	193	295	407	46.6	47.5	48.4	39.9	31.5	24.3
Cambodia	6 748	11 380	15 053	53.7	51.9	51.0	91.0	85.8	77.2
Indonesia	146 582	191 501	232 517	49.9	49.9	50.1	77.9	64.4	46.3
Lao People's Democratic Republic	3 238	4 809	6 436	50.3	50.0	50.1	87.6	82.6	66.8
Malaysia	13 763	20 594	27 914	49.7	49.2	49.2	58.0	44.3	27.8
Myanmar	33 561	43 864	50 496	50.6	50.7	51.2	76.0	73.9	66.1
Philippines	48 112	69 965	93 617	49.6	49.6	49.6	62.5	46.0	33.6
Singapore	2 415	3 480	4 837	48.9	49.7	49.8	0.0	0.0	0.0
Thailand	47 264	60 140	68 139	49.9	50.5	50.8	73.2	69.7	66.0
Timor-Leste	581	849	1 171	49.1	48.6	49.1	83.6	77.4	71.9
Viet Nam	53 317	72 957	89 029	51.5	51.3	50.6	80.8	77.8	71.2
Southern Asia	**949 618**	**1 332 534**	**1 719 122**	**48.0**	**48.3**	**48.6**	**76.6**	**72.3**	**68.1**
Afghanistan	13 946	18 084	29 117	48.1	48.2	48.2	84.3	80.2	75.2
Bangladesh	90 397	128 086	164 425	48.5	49.2	49.4	85.1	78.3	71.9
Bhutan	423	509	708	48.2	49.1	47.3	89.8	79.4	63.1
India	692 637	953 148	1 214 464	48.0	48.1	48.4	76.9	73.4	69.9
Iran (Islamic Republic of)	39 330	62 205	75 078	48.8	49.1	49.2	50.3	39.8	30.5
Maldives	158	248	314	47.5	48.8	49.4	77.8	74.2	59.6
Nepal	15 058	21 624	29 853	48.7	49.9	50.3	93.9	89.1	81.8
Pakistan	82 609	130 397	184 753	47.4	48.2	48.5	71.9	68.2	63.0
Sri Lanka	15 060	18 233	20 410	49.0	49.8	50.8	81.2	83.6	84.9
Western Asia	**102 155**	**170 591**	**232 701**	**48.8**	**48.7**	**48.6**	**48.6**	**37.6**	**33.7**
Armenia		3 223	3 090		52.6	53.4		33.7	36.3
Azerbaijan		7 784	8 934		51.1	51.1		47.8	47.8
Bahrain	347	578	807	41.8	41.7	42.6	13.8	11.6	11.4
Cyprus	611	731	880	50.1	50.1	51.3	41.4	32.0	29.8
Georgia		5 069	4 219		52.5	53.0		46.1	47.0
Iraq	14 024	20 971	31 467	49.0	49.8	49.4	34.5	31.2	33.6
Israel	3 764	5 374	7 285	50.0	50.7	50.4	11.4	9.1	8.3

TABLE A1 *(cont.)*

	Population								
	Total *(Thousands)*			Female share *(% of total)*			Rural share *(% of total)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Jordan	2 225	4 304	6 472	48.3	47.7	48.7	40.0	21.8	21.5
Kuwait	1 375	1 725	3 051	42.7	39.9	40.6	5.2	1.9	1.6
Lebanon	2 785	3 491	4 255	50.4	50.8	51.0	26.3	15.2	12.8
Occupied Palestinian Territory [A]	1 476	2 617	4 409	48.4	49.3	49.1	37.5	29.6	27.9
Oman	1 187	2 172	2 905	47.3	41.0	43.7	52.5	28.3	28.3
Qatar	229	526	1 508	36.2	34.0	24.6	10.5	5.9	4.2
Saudi Arabia	9 604	18 255	26 246	46.0	44.2	45.3	34.1	21.3	17.9
Syrian Arab Republic	8 971	14 610	22 505	49.6	49.6	49.5	53.3	49.9	45.1
Turkey	46 161	61 206	75 705	49.5	49.6	49.8	56.2	37.9	30.4
United Arab Emirates	1 015	2 432	4 707	30.9	33.9	32.9	19.3	21.6	21.9
Yemen	8 381	15 523	24 256	50.1	49.3	49.4	83.5	76.2	68.2
LATIN AMERICA AND THE CARIBBEAN	**362 654**	**482 265**	**588 647**	**50.1**	**50.4**	**50.6**	**35.1**	**27.0**	**20.7**
Caribbean	**29 860**	**36 640**	**42 311**	**50.1**	**50.3**	**50.5**	**48.3**	**41.0**	**33.2**
Anguilla	7	10	15	42.9	50.0	53.3	0.0	0.0	0.0
Antigua and Barbuda	72	68	89	51.4	51.5	50.6	65.3	66.2	69.7
Aruba	61	80	107	50.8	51.3	52.3	49.2	51.3	53.3
Bahamas	210	281	346	50.5	50.5	51.2	27.1	19.2	15.9
Barbados	249	258	257	52.2	51.9	51.4	60.2	65.5	59.1
British Virgin Islands	11	18	23	54.5	50.0	52.2	81.8	61.1	60.9
Cayman Islands	17	33	57	52.9	51.5	50.9	0.0	0.0	0.0
Cuba	9 835	10 910	11 204	49.4	49.8	49.9	31.9	25.7	24.3
Dominica	73	69	67	50.7	50.7	50.7	37.0	30.4	25.4
Dominican Republic	5 927	8 124	10 225	49.4	49.6	49.8	48.7	42.2	29.5
Grenada	89	100	104	51.7	51.0	50.0	67.4	69.0	69.2
Guadeloupe	327	405	467	51.1	51.4	52.0	2.1	1.5	1.7
Haiti	5 691	7 861	10 188	50.8	50.6	50.6	79.5	67.4	50.4
Jamaica	2 133	2 466	2 730	50.7	50.7	51.1	53.3	49.4	46.3
Martinique	326	370	406	51.5	52.2	53.2	20.2	2.2	2.0
Montserrat	12	10	6	50.0	50.0	50.0	83.3	90.0	83.3
Netherlands Antilles	174	191	201	51.7	52.4	53.7	19.0	12.0	7.0
Puerto Rico	3 197	3 701	3 998	51.3	51.7	52.1	33.1	12.9	1.2
Saint Kitts and Nevis	43	43	52	51.2	51.2	51.9	65.1	67.4	67.3
Saint Lucia	118	147	174	50.8	51.0	51.1	73.7	70.7	71.8
Saint Vincent and the Grenadines	100	108	109	52.0	50.0	49.5	73.0	57.4	52.3
Trinidad and Tobago	1 082	1 265	1 344	50.0	50.9	51.4	89.1	90.4	86.1
Turks and Caicos Islands	8	15	33	50.0	53.3	51.5	37.5	20.0	6.1
United States Virgin Islands	98	107	109	52.0	52.3	53.2	20.4	9.3	4.6

TABLE A1 *(cont.)*

	Population								
	Total *(Thousands)*			Female share *(% of total)*			Rural share *(% of total)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Central America	**91 879**	**124 004**	**153 115**	**50.1**	**50.4**	**50.8**	**39.8**	**32.9**	**28.3**
Belize	144	220	313	49.3	49.5	49.5	50.7	52.7	47.3
Costa Rica	2 349	3 479	4 640	49.0	49.2	49.2	56.9	44.2	35.7
El Salvador	4 663	5 728	6 194	50.8	51.6	52.9	55.9	46.0	38.7
Guatemala	7 016	10 007	14 377	49.4	50.3	51.3	62.6	56.9	50.5
Honduras	3 634	5 588	7 616	49.8	49.9	50.0	65.1	57.7	51.2
Mexico	68 872	91 650	110 645	50.2	50.5	50.8	33.7	26.6	22.2
Nicaragua	3 250	4 659	5 822	49.9	50.2	50.5	50.1	46.5	42.7
Panama	1 951	2 673	3 508	49.2	49.5	49.6	49.6	40.0	25.2
South America	**240 915**	**321 621**	**393 221**	**50.1**	**50.4**	**50.6**	**31.6**	**23.0**	**16.4**
Argentina	28 154	34 772	40 666	50.6	50.9	50.9	17.1	11.3	7.6
Bolivia (Plurinational State of)	5 356	7 484	10 031	50.7	50.3	50.1	54.6	40.6	33.5
Brazil	121 618	161 692	195 423	50.1	50.5	50.8	32.6	22.2	13.5
Chile	11 181	14 410	17 135	50.7	50.6	50.5	18.8	15.6	11.0
Colombia	26 891	36 459	46 300	50.2	50.6	50.8	37.9	29.5	24.9
Ecuador	7 964	11 407	13 775	49.7	49.8	49.9	53.0	42.2	33.1
Falkland Islands (Malvinas)	2	2	3	50.0	50.0	66.7	50.0	0.0	0.0
French Guiana	68	139	231	48.5	48.2	50.2	29.4	25.2	23.8
Guyana	776	759	761	50.5	51.4	48.6	69.5	70.9	71.6
Paraguay	3 199	4 802	6 460	49.6	49.4	49.5	58.3	47.9	38.5
Peru	17 328	23 943	29 496	49.7	49.8	49.9	35.4	29.7	28.4
Suriname	366	436	524	49.5	49.3	50.0	45.1	29.8	24.4
Uruguay	2 916	3 224	3 372	51.0	51.6	51.7	14.6	9.5	7.4
Venezuela (Bolivarian Republic of)	15 096	22 092	29 044	49.4	49.6	49.8	20.8	13.2	6.0
OCEANIA EXCLUDING AUSTRALIA AND NEW ZEALAND	**4 969**	**7 249**	**10 022**	**47.5**	**48.7**	**49.2**	**78.2**	**75.9**	**76.8**
American Samoa	33	53	69	48.5	49.1	49.3	24.2	15.1	7.2
Cook Islands	18	19	20	50.0	47.4	50.0	44.4	42.1	25.0
Fiji	634	768	854	49.4	49.2	49.3	62.1	54.6	46.6
French Polynesia	151	216	272	47.7	48.1	48.9	42.4	46.3	48.5
Guam	107	146	180	47.7	47.9	48.9	6.5	8.2	6.7
Kiribati	55	77	100	49.1	49.4	52.0	67.3	63.6	56.0
Marshall Islands		51	63		49.0	52.4		33.3	28.6
Micronesia (Federated States of)		107	111		48.6	48.6		74.8	77.5
Nauru	7	10	10	57.1	50.0	50.0	0.0	0.0	0.0
New Caledonia	143	193	254	48.3	48.7	50.0	42.7	39.9	34.6
Niue	3	2	1	66.7	50.0	100	100	50.0	100
Northern Mariana Islands		58	88		50.0	52.3		10.3	9.1
Palau		17	21		47.1	52.4		29.4	19.0

TABLE A1 *(cont.)*

	Population								
	Total *(Thousands)*			Female share *(% of total)*			Rural share *(% of total)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Papua New Guinea	3 199	4 709	6 888	46.8	48.7	49.2	87.0	85.9	87.5
Samoa	155	168	179	49.0	48.2	48.0	78.7	78.6	76.5
Solomon Islands	229	362	536	48.0	48.1	48.1	89.5	85.4	81.3
Tokelau	2	1	1	50.0	100	100	100	100	100
Tonga	97	97	104	49.5	49.5	49.0	78.4	77.3	75.0
Tuvalu	8	9	10	50.0	55.6	50.0	75.0	55.6	50.0
Vanuatu	117	172	246	47.0	48.8	48.8	85.5	79.7	74.4
Wallis and Futuna Islands	11	14	15	54.5	50.0	53.3	100	100	100
COUNTRIES IN DEVELOPED REGIONS	**1 127 965**	**1 174 680**	**1 237 229**	**51.7**	**51.5**	**51.4**	**32.1**	**27.8**	**24.9**
ASIA AND OCEANIA	134 636	147 245	152 810	50.7	50.9	51.1	37.0	32.2	29.5
Australia	14 695	18 118	21 512	50.1	50.3	50.3	14.2	13.9	10.9
Japan	116 794	125 442	126 995	50.8	51.0	51.3	40.4	35.4	33.2
New Zealand	3 147	3 685	4 303	50.3	50.6	50.6	16.6	14.7	13.2
EUROPE	**739 232**	**727 362**	**732 760**	**52.1**	**51.9**	**51.9**	**33.2**	**29.0**	**27.4**
Eastern Europe	**369 928**	**309 805**	**291 485**	**52.8**	**52.6**	**53.1**	**39.2**	**31.8**	**31.6**
Belarus		10 270	9 588		53.1	53.5		32.1	25.7
Bulgaria	8 862	8 357	7 497	50.2	51.0	51.7	37.9	32.2	28.3
Czech Republic		10 319	10 411		51.4	50.9		25.4	26.5
Czechoslovakia [A]	15 260			51.3			32.5		
Hungary	10 707	10 332	9 973	51.6	52.2	52.5	35.8	34.8	31.7
Poland	35 574	38 595	38 038	51.3	51.3	51.8	41.9	38.5	38.8
Republic of Moldova		4 339	3 576		52.2	52.5		53.7	58.8
Romania	22 201	22 681	21 190	50.7	51.0	51.4	53.9	46.0	45.4
Russian Federation		148 497	140 367		53.1	53.8		26.6	27.2
Slovakia		5 352	5 412		51.3	51.5		43.4	43.2
Ukraine		51 063	45 433		53.6	53.9		33.0	31.9
USSR [A]	265 407			53.4			37.4		
Yugoslav SFR [A]	11 917			51.0			54.5		
Northern Europe	**82 479**	**93 260**	**98 907**	**51.1**	**51.3**	**50.9**	**16.8**	**17.0**	**15.6**
Denmark	5 123	5 228	5 481	50.6	50.7	50.4	16.3	15.0	12.8
Estonia		1 439	1 339		53.6	53.9		30.0	30.5
Faroe Islands	43	43	50	51.2	51.2	50.0	69.8	69.8	58.0
Finland	4 780	5 108	5 346	51.7	51.3	51.0	40.2	38.6	36.1
Iceland	228	267	329	49.6	49.8	48.6	11.8	8.2	7.6
Ireland	3 401	3 609	4 589	49.7	50.3	49.9	44.7	42.1	38.1
Latvia		2 492	2 240		53.9	53.9		31.3	31.8
Lithuania		3 630	3 255		52.9	53.2		32.7	32.8

TABLE A1 *(cont.)*

	Population								
	Total *(Thousands)*			Female share *(% of total)*			Rural share *(% of total)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Norway	4 086	4 359	4 855	50.4	50.6	50.3	29.4	26.2	22.4
Sweden	8 310	8 827	9 293	50.5	50.6	50.3	16.9	16.2	15.3
United Kingdom	56 508	58 258	62 130	51.3	51.4	50.9	12.2	11.2	10.1
Southern Europe	**116 325**	**143 699**	**153 780**	**51.2**	**51.2**	**51.0**	**34.8**	**35.3**	**32.5**
Albania	2 671	3 134	3 169	48.4	49.6	50.7	66.2	61.1	52.0
Andorra	37	65	87	48.6	47.7	48.3	8.1	6.2	11.5
Bosnia and Herzegovina		3 332	3 760		51.5	51.9		58.9	51.4
Croatia		4 669	4 410		51.8	51.8		45.1	42.2
Gibraltar	28	29	31	46.4	48.3	48.4	0.0	0.0	0.0
Greece	9 643	10 672	11 183	50.9	50.6	50.4	42.3	40.7	38.6
Holy See	1	1	1	0.0	0.0	0.0	0.0	0.0	0.0
Italy	56 307	57 207	60 098	51.5	51.6	51.3	33.4	33.1	31.6
Malta	324	378	410	51.2	50.5	50.2	10.2	9.0	5.4
Montenegro			626			50.8			40.4
Portugal	9 766	10 038	10 732	51.9	51.8	51.6	57.2	48.9	39.3
San Marino	21	26	32	47.6	46.2	46.9	19.0	7.7	6.3
Serbia [A]			9 856			50.5			47.6
Serbia and Montenegro [A]		10 828			50.4			49.0	
Slovenia		1 966	2 025		51.4	51.2		49.4	52.0
Spain	37 527	39 391	45 317	51.0	51.0	50.7	27.2	24.1	22.6
The former Yugoslav Republic of Macedonia		1 963	2 043		50.0	50.1		39.7	32.1
Western Europe	**170 500**	**180 598**	**188 588**	**51.8**	**51.3**	**51.1**	**27.3**	**25.2**	**23.0**
Austria	7 549	7 936	8 387	52.7	51.8	51.2	34.6	34.2	32.4
Belgium			10 698			51.0			2.6
Belgium-Luxembourg [A]	10 192	10 493		51.1	51.1		5.2	3.8	
France	53 950	57 999	62 637	51.2	51.4	51.4	26.7	25.1	22.2
Germany	78 289	81 622	82 057	52.4	51.4	50.9	27.2	26.7	26.2
Liechtenstein	25	31	36	52.0	51.6	52.8	84.0	83.9	86.1
Luxembourg			492			50.4			17.7
Monaco	26	31	33	53.8	51.6	51.5	0.0	0.0	0.0
Netherlands	14 150	15 448	16 653	50.4	50.6	50.4	35.3	27.2	17.1
Switzerland	6 319	7 038	7 595	51.4	51.2	51.2	42.9	26.4	26.4
NORTHERN AMERICA	**254 097**	**300 073**	**351 659**	**50.9**	**50.9**	**50.6**	**26.1**	**22.7**	**17.9**
Bermuda	56	61	65	48.2	49.2	49.2	0.0	0.0	0.0
Canada	24 516	29 302	33 890	50.2	50.5	50.5	24.3	22.3	19.4
Greenland	50	56	57	48.0	48.2	49.1	24.0	19.6	15.8
Saint Pierre and Miquelon	6	6	6	50.0	50.0	50.0	16.7	16.7	16.7
United States of America	229 469	270 648	317 641	51.0	50.9	50.6	26.3	22.7	17.7

TABLE A2
Female share of national, rural and urban population aged 15–49, most recent and earliest observations

	Most recent observation (1999–2008) (%)			Earliest observation (1960–1980) (%)		
	National	Rural	Urban	National	Rural	Urban
WORLD						
COUNTRIES IN DEVELOPING REGIONS						
AFRICA						
Sub-Saharan Africa						
Eastern Africa						
Burundi	..	..	..	50.1	50.2	46.2
Comoros	..	..	..	52.2	52.6	51.0
Djibouti	..	..	..	..	..	..
Eritrea		..	..			
Ethiopia	50.0	49.9	50.5			
Ethiopia PDR				..	..	..
Kenya	50.9	54.3	38.9	51.1	53.2	37.6
Madagascar	..	..	..	51.6	51.5	51.8
Malawi	51.4	52.1	48.7	53.3	54.5	42.6
Mauritius	49.7	49.6	49.9	..	..	..
Mozambique	..	..	..	..	..	..
Réunion	..	..	..	..	..	..
Rwanda	52.9	55.0	44.3	52.3	53.1	40.8
Seychelles	..	..	..	51.7	50.6	54.8
Somalia	50.5	50.1	51.2	..	..	..
Uganda	52.3	52.5	51.5	50.2	51.1	42.3
United Republic of Tanzania	..	..	..	52.4	53.7	45.9
Zambia	51.7	52.4	50.5	53.1	56.8	47.9
Zimbabwe	52.3	53.2	50.9	..	..	..
Middle Africa						
Angola	..	..	..	..	..	..
Cameroon	..	..	..	53.3	56.0	47.3
Central African Republic	..	..	..	54.5	55.2	53.1
Chad	..	..	..	..	..	..
Congo	..	..	..	..	..	..
Democratic Republic of the Congo	..	..	..	..	..	..
Equatorial Guinea	..	..	..	..	..	..
Gabon	..	..	..	..	..	..
Sao Tome and Principe	51.4	49.5	52.8	..	..	..
Northern Africa				**49.3**	**50.7**	**47.1**
Algeria	..	..	..	50.7	50.8	50.5

TABLE A2 *(cont.)*

	Most recent observation (1999–2008) (%)			Earliest observation (1960–1980) (%)		
	National	Rural	Urban	National	Rural	Urban
Egypt	..	..	..	50.5	51.2	49.3
Libyan Arab Jamahiriya	49.5	49.9	49.5	48.2	49.5	47.2
Morocco	51.2	51.0	51.4	51.8	52.2	51.0
Sudan	..	..	..	51.4	53.7	45.1
Tunisia	..	..	..	50.3	51.8	48.4
Western Sahara	..	..	..	42.4	45.4	38.5
Southern Africa	**51.7**	**51.7**	**52.3**	**50.1**	**53.5**	**43.3**
Botswana	52.4	50.9	53.2	52.5	52.6	47.5
Lesotho	50.8	49.2	54.9	..	..	..
Namibia	51.6	52.6	50.1	48.7	52.3	39.2
South Africa	52.0	54.0	50.7	49.0	55.6	43.2
Swaziland	..	..	..	..	..	..
Western Africa						
Benin	54.0	55.7	51.8	57.4	59.1	55.0
Burkina Faso	54.2	55.9	49.7	52.7	53.0	48.9
Cape Verde	51.4	52.5	50.6	..	..	..
Côte d'Ivoire	..	..	..	48.7	51.7	43.4
Gambia	..	..	..	..	..	..
Ghana	51.3	51.1	51.4	..	..	..
Guinea	..	..	..	..	..	..
Guinea-Bissau	..	..	..	..	..	..
Liberia	..	..	..	52.2	54.9	46.3
Mali	..	..	..	..	..	..
Mauritania	..	..	..	..	..	..
Niger	51.3	51.6	50.0	..	..	..
Nigeria	..	..	..	51.3	52.6	45.2
Saint Helena	..	..	..	..	..	..
Senegal	53.7	54.4	53.0	52.6	53.0	51.8
Sierra Leone	..	..	..	..	..	..
Togo	..	..	..	..	..	..
ASIA EXCLUDING JAPAN	**49.5**	**49.2**	**49.5**			
Central Asia	**50.2**	**49.5**	**51.0**	**49.8**	**50.0**	**49.6**
Kazakhstan	50.6	48.5	52.3	49.8	48.5	50.8
Kyrgyzstan	50.1	49.0	52.0	49.8	49.6	50.2
Tajikistan	50.1	50.3	49.5	50.0	50.7	48.8
Turkmenistan	..	..	..	49.7	50.5	48.8
Uzbekistan	50.2	50.3	50.0	49.9	50.4	49.2
Eastern Asia excluding Japan	**49.3**	**47.8**	**49.9**			
China	48.7	48.6	48.8	..	..	..

TABLE A2 *(cont.)*

	Most recent observation (1999–2008) (%)			Earliest observation (1960–1980) (%)		
	National	Rural	Urban	National	Rural	Urban
China, Hong Kong SAR	..	..	..	..	..	..
China, Macao SAR	..	..	..	50.7	48.4	50.8
China, mainland	..	..	..	..	..	..
Democratic People's Republic of Korea	..	..	..	..	..	..
Mongolia	50.3	48.5	51.4	..	..	..
Republic of Korea	49.1	46.4	49.6	50.3	50.2	50.4
Southeastern Asia	**50.2**	**49.7**	**50.7**			
Brunei Darussalam	49.8	47.8	50.5	47.1	50.0	43.9
Cambodia	51.1	50.9	51.9	50.5	50.7	48.5
Indonesia	50.3	50.1	50.5	52.7	52.7	53.0
Lao People's Democratic Republic	50.4	50.6	50.0	..	..	..
Malaysia	49.2	48.6	49.5	..	..	..
Myanmar	..	..	..	..	..	..
Philippines	..	..	..	51.3	50.3	53.1
Singapore	..	..	..	..	..	..
Thailand	50.4	50.0	51.5	50.5	50.5	50.7
Timor-Leste	..	..	..	..	..	..
Viet Nam	50.2	49.8	51.2	..	..	..
Southern Asia	**49.4**	**49.9**	**47.9**	**48.7**	**49.4**	**44.9**
Afghanistan	..	..	..	49.2	49.3	48.3
Bangladesh	50.0	51.4	46.2	48.4	49.4	39.5
Bhutan	46.1	47.2	44.2	..	..	..
India	48.2	48.7	47.0	48.4	49.5	43.9
Iran (Islamic Republic of)	49.3	49.2	49.3	48.7	49.7	47.1
Maldives	50.8	50.6	51.1	46.5	46.3	48.5
Nepal	50.9	51.6	48.2	51.5	51.8	45.6
Pakistan	49.6	50.2	48.7	47.7	48.9	40.9
Sri Lanka	50.2	50.5	48.6	48.9	49.9	45.4
Western Asia	**48.9**	**48.5**	**49.1**	**47.2**	**48.5**	**46.0**
Armenia	50.7	49.2	51.6	50.7	49.8	51.1
Azerbaijan	50.3	49.8	50.7	50.2	52.1	48.9
Bahrain	..	..	..	43.4	49.2	42.0
Cyprus	50.8	49.2	51.5	52.0	53.0	50.4
Georgia	51.7	49.7	53.5	51.5	50.4	52.4
Iraq	49.8	50.3	49.6	49.9	51.4	48.3
Israel	49.8	48.7	49.9	50.2	48.6	50.5
Jordan	48.2	48.0	48.3	48.4	49.0	47.9
Kuwait	..	..	..	..	..	..
Lebanon	..	..	..	49.5	50.0	49.2
Occupied Palestinian Territory	..	..	..			
Oman	38.5	40.3	37.9	..	..	..

TABLE A2 *(cont.)*

	Most recent observation (1999–2008) (%)			Earliest observation (1960–1980) (%)		
	National	Rural	Urban	National	Rural	Urban
Qatar	..	..	..	..	..	..
Saudi Arabia	..	..	..	..	..	..
Syrian Arab Republic	50.0	50.3	49.9	49.5	50.5	47.9
Turkey	49.1	49.9	48.7	48.5	51.4	42.0
United Arab Emirates	..	..	..	22.5	26.8	21.8
Yemen	..	..	..	..	..	..
LATIN AMERICA AND THE CARIBBEAN	**50.7**	**48.3**	**51.8**	**50.9**	**48.6**	**53.3**
Caribbean						
Anguilla	..	..	..	..	..	..
Antigua and Barbuda	..	..	..	53.5	52.4	55.0
Aruba	..	..	..	..	..	..
Bahamas	..	..	..	..	..	..
Barbados	..	..	..	..	..	..
British Virgin Islands	..	..	..	..	..	..
Cayman Islands	..	..	..	..	..	..
Cuba	49.3	47.7	49.8	49.2	46.7	50.7
Dominica	..	..	..	..	..	..
Dominican Republic	50.4	49.5	50.8	50.7	48.3	55.5
Grenada	..	..	..	..	..	..
Guadeloupe	..	..	..	..	..	..
Haiti	51.2	47.7	56.6	..	..	..
Jamaica	51.3	48.9	53.3	53.4	51.9	56.2
Martinique	..	..	..	..	..	..
Montserrat	..	..	..	..	..	..
Netherlands Antilles	..	..	..	50.5	50.8	51.4
Puerto Rico	..	..	..	52.5	51.8	52.9
Saint Kitts and Nevis	..	..	..	55.1	54.6	56.2
Saint Lucia	50.9	51.0	50.6	..	..	..
Saint Vincent and the Grenadines	..	..	..	..	..	..
Trinidad and Tobago	..	..	..	..	..	..
Turks and Caicos Islands	..	..	..	..	..	..
United States Virgin Islands	..	..	..	49.3	46.4	51.5
Central America	**51.6**	**50.2**	**52.7**	**50.9**	**48.4**	**54.2**
Belize	51.4	50.5	52.2	51.5	46.4	55.7
Costa Rica	51.1	50.0	51.9	50.4	47.7	53.9
El Salvador	54.1	53.2	54.6	52.1	49.9	55.3
Guatemala	52.7	51.9	53.3	49.7	48.2	52.4
Honduras	51.0	48.4	53.2	51.3	50.3	54.2
Mexico	52.2	52.3	52.2	51.2	49.5	52.7
Nicaragua	50.9	48.6	52.6	51.9	48.6	56.6
Panama	49.7	46.9	51.6	49.5	46.6	53.0

TABLE A2 *(cont.)*

	Most recent observation (1999–2008) (%)			Earliest observation (1960–1980) (%)		
	National	Rural	Urban	National	Rural	Urban
South America	**50.1**	**46.8**	**51.1**	**50.2**	**47.3**	**52.2**
Argentina	49.9	47.0	50.2	50.3	45.4	51.2
Bolivia (Plurinational State of)	50.1	46.8	51.6	51.2	50.5	52.0
Brazil	50.8	46.8	51.6	50.9	49.0	52.9
Chile	49.8	46.2	50.3	51.6	45.3	54.1
Colombia	51.5	47.0	52.7	52.0	48.3	55.2
Ecuador	49.8	48.4	50.4	50.8	49.3	53.5
Falkland Islands (Malvinas)	..	..	..	42.1	40.1	44.2
French Guiana	..	..	..	..	..	..
Guyana	50.1	49.0	52.6	50.5	49.7	54.5
Paraguay	49.4	46.1	51.7	52.1	50.7	54.3
Peru	50.7	48.0	51.4	50.5	50.9	50.0
Suriname	49.2	48.3	49.6	..	..	..
Uruguay	50.3	43.4	50.8	50.7	41.7	52.6
Venezuela (Bolivarian Republic of)	49.8	44.7	50.4	..	..	..
OCEANIA EXCLUDING AUSTRALIA AND NEW ZEALAND						
American Samoa	..	..	..	..	..	..
Cook Islands	..	..	..	..	..	..
Fiji	48.8	47.4	50.0	49.6	49.8	49.2
French Polynesia	..	..	..	..	..	..
Guam	..	..	..	..	..	..
Kiribati	51.0	49.9	52.3	51.6	53.2	47.2
Marshall Islands	..	..	..	..	..	..
Micronesia (Federated States of)	..	..	..	..	..	..
Nauru	..	..	..	..	..	..
New Caledonia	..	..	..	..	..	..
Niue	..	..	..	..	..	..
Northern Mariana Islands	61.2	66.3	60.5	..	..	..
Palau	..	..	..	..	..	..
Papua New Guinea	49.1	49.8	45.4	47.6	49.2	39.3
Samoa	..	..	..	48.6	48.4	49.6
Solomon Islands	..	..	..	48.2	50.2	29.9
Tokelau	..	..	..	..	..	..
Tonga	49.5	49.3	49.9	..	..	..
Tuvalu	..	..	..	..	..	..
Vanuatu	..	..	..	47.3	49.0	37.6
Wallis and Futuna Islands	..	..	..	..	..	..
COUNTRIES IN DEVELOPED REGIONS	**49.5**	**47.9**	**50.2**			
ASIA AND OCEANIA	**50.1**	**49.3**	**50.2**	**49.8**	**47.9**	**50.1**
Australia	49.8	48.9	50.0	48.7	44.8	49.5

TABLE A2 *(cont.)*

	Most recent observation (1999–2008) (%)			Earliest observation (1960–1980) (%)		
	National	Rural	Urban	National	Rural	Urban
Japan	49.4	49.5	49.4	51.4	52.4	50.9
New Zealand	51.0	49.4	51.2	49.3	46.4	49.8
EUROPE	**49.5**	**47.7**	**50.4**			
Eastern Europe	**49.7**	**47.9**	**50.6**	**51.5**	**51.4**	**51.4**
Belarus	50.2	47.0	51.1	52.6	52.9	52.2
Bulgaria	49.2	46.9	50.0	49.7	49.7	49.6
Czech Republic	48.7	47.8	49.0			
Czechoslovakia				..	..	..
Hungary	49.4	47.8	50.2	51.6	51.7	51.4
Poland	49.5	48.1	50.4	52.5	52.7	52.4
Republic of Moldova	50.3	48.9	52.0	51.9	51.3	52.7
Romania	49.2	46.6	51.1	50.6	51.0	49.8
Russian Federation	50.6	48.9	51.2	50.2	48.1	51.0
Slovakia	49.2	48.2	50.1	..	..	..
Ukraine	50.6	48.7	51.4	52.8	54.0	52.0
USSR				..	..	..
Yugoslav SFR				..	..	..
Northern Europe	**49.2**	**47.2**	**50.1**	**49.6**	**46.8**	**51.7**
Denmark	..	..	..	50.1	45.7	51.5
Estonia	50.3	48.0	51.4	50.1	47.4	51.1
Faroe Islands	46.4	45.7	47.6	46.4	44.6	50.4
Finland	49.0	47.6	49.5	50.8	47.3	53.3
Iceland	47.8	43.9	48.1	49.2	47.2	51.5
Ireland	49.8	47.9	51.0	49.8	45.8	53.9
Latvia	50.0	47.2	51.4	50.5	48.4	51.3
Lithuania	50.2	47.2	51.6	50.7	48.9	51.6
Norway	49.0	47.4	49.5	49.3	46.6	51.4
Sweden	..	..	..	49.5	45.7	50.7
United Kingdom	50.4	49.7	50.6	..	..	..
Southern Europe	**49.5**	**47.9**	**50.5**			
Albania	50.9	50.2	51.7	..	..	..
Andorra	..	..	..	..	..	..
Bosnia and Herzegovina	..	..	..	..	..	..
Croatia	49.6	47.6	51.1	..	..	..
Gibraltar	..	..	..	..	..	..
Greece	49.1	45.3	50.1	51.4	52.7	50.7
Holy See	..	..	..	..	..	..
Italy	..	..	..	..	..	..
Malta	48.9	47.4	48.9	..	..	..

TABLE A2 *(cont.)*

	Most recent observation (1999–2008) (%)			Earliest observation (1960–1980) (%)		
	National	Rural	Urban	National	Rural	Urban
Montenegro	49.8	47.3	51.2	..	..	..
Portugal	50.2	49.6	51.2	51.9	51.2	54.0
San Marino	..	..	..	..	..	..
Serbia	49.8	47.7	51.1			
Serbia and Montenegro				..	..	..
Slovenia	48.4	47.9	48.8	..	..	..
Spain	49.4	48.0	50.1	51.0	49.8	52.3
The former Yugoslav Republic of Macedonia	..	..	..			
Western Europe						
Austria	49.5	48.3	50.1	50.7	49.6	51.7
Belgium	49.5	48.7	49.5	..	..	..
Belgium-Luxembourg	..	..	..	..	..	..
France	50.1	48.2	50.6	49.4	47.6	50.2
Germany	..	..	..	..	..	..
Liechtenstein	..	..	..	..	..	..
Luxembourg	..	..	..	49.8	48.5	50.6
Monaco	..	..	..	..	..	..
Netherlands	49.5	49.0	49.8	49.2	48.1	49.6
Switzerland	49.5	48.8	49.7	49.6	48.2	50.7
NORTHERN AMERICA	**48.9**	**47.2**	**49.2**	**49.8**	**47.0**	**51.2**
Bermuda	..	..	..	..	..	..
Canada	50.4	49.3	50.7	49.6	46.8	50.8
Greenland	46.5	43.2	47.1	48.8	45.4	51.0
Saint Pierre and Miquelon	..	..	..	..	..	..
United States of America	49.7	49.1	49.9	50.9	48.8	51.7

TABLE A3
Economically active population, female share of economically active population and agricultural share of economically active women in 1980, 1995 and 2010

	Economically active population								
	Total *(Thousands)*			Female share *(% of total)*			Agricultural share of economically active women *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
WORLD	**1 894 978**	**2 575 394**	**3 282 308**	**38.1**	**39.6**	**40.5**	**53.5**	**48.7**	**42.0**
COUNTRIES IN DEVELOPING REGIONS	**1 353 280**	**2 000 716**	**2 656 880**	**36.4**	**38.3**	**39.2**	**72.1**	**62.8**	**52.7**
AFRICA	**172 652**	**268 197**	**407 905**	**38.5**	**39.5**	**41.4**	**78.8**	**70.9**	**62.2**
Sub-Saharan Africa	**147 699**	**227 175**	**346 919**	**41.8**	**42.4**	**43.8**	**79.1**	**72.7**	**65.0**
Eastern Africa	**61 341**	**97 031**	**152 689**	**46.2**	**47.2**	**48.3**	**91.0**	**86.5**	**79.2**
Burundi	1 977	2 978	4 260	53.2	52.3	51.4	97.8	97.6	97.3
Comoros	151	250	387	43.0	42.8	43.7	93.8	88.8	82.8
Djibouti	133	249	381	42.9	43.4	43.3	91.2	87.0	79.4
Eritrea		1 200	2 086		42.1	40.9		83.4	78.5
Ethiopia		24 306	41 929		43.6	47.9		83.3	73.5
Ethiopia PDR [A]	14 833			41.1			88.6		
Kenya	6 718	12 139	18 887	45.7	46.3	46.4	88.1	82.9	73.9
Madagascar	3 880	5 966	10 060	48.6	48.3	49.1	92.7	85.8	76.4
Malawi	2 876	4 302	6 542	51.6	50.2	49.8	96.1	95.1	94.0
Mauritius	370	485	589	29.7	33.0	37.0	27.3	11.3	5.5
Mozambique	5 951	7 547	10 778	51.2	55.5	55.8	97.0	95.5	94.0
Réunion	170	270	362	35.3	43.3	46.4	8.3	0.9	0.6
Rwanda	2 328	2 327	4 722	52.6	52.7	53.1	98.0	97.3	96.1
Seychelles	28	33	40	46.4	48.5	47.5	92.3	81.3	78.9
Somalia	2 437	2 565	3 731	38.0	38.4	39.2	90.2	85.4	76.7
Uganda	5 679	9 225	14 896	47.5	47.7	47.8	90.8	86.2	77.5
United Republic of Tanzania	9 084	14 855	22 339	50.2	49.8	49.7	91.8	89.6	84.0
Zambia	1 985	3 481	5 146	36.3	42.9	43.3	84.7	79.7	68.0
Zimbabwe	2 741	4 853	5 554	46.8	46.7	44.2	84.5	78.2	68.2
Middle Africa	**21 068**	**33 670**	**50 767**	**42.7**	**42.0**	**41.8**	**85.4**	**79.9**	**70.2**
Angola	3 421	5 397	8 447	45.7	45.6	47.3	87.3	84.4	80.6
Cameroon	3 402	5 086	7 622	43.2	40.1	41.7	86.5	77.3	54.1
Central African Republic	1 018	1 476	2 030	46.6	45.8	44.9	90.3	83.9	70.3
Chad	1 547	2 790	4 623	25.9	45.8	49.0	95.3	88.3	76.2
Congo	700	1 099	1 524	40.3	42.1	40.6	80.5	63.3	44.4
Democratic Republic of the Congo	10 558	17 137	25 488	43.8	40.5	38.5	83.7	79.1	72.6
Equatorial Guinea	87	174	268	33.3	32.8	32.5	93.1	89.5	87.4
Gabon	305	472	708	44.9	44.1	43.9	73.7	50.0	26.7
Sao Tome and Principe	30	39	57	33.3	33.3	40.4	80.0	84.6	69.6

TABLE A3 *(cont.)*

	Economically active population								
	Total *(Thousands)*			Female share *(% of total)*			Agricultural share of economically active women *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Northern Africa	**31 554**	**50 078**	**74 694**	**20.4**	**23.9**	**28.3**	**78.2**	**58.5**	**42.8**
Algeria	4 555	9 018	14 950	21.4	25.6	34.0	69.3	51.0	32.9
Egypt	11 780	18 531	27 492	16.9	22.1	25.7	82.7	55.3	39.3
Libyan Arab Jamahiriya	838	1 517	2 425	13.4	18.3	24.5	62.5	20.9	8.6
Morocco	5 848	9 015	11 963	21.3	24.2	24.8	72.3	59.7	49.1
Sudan	6 601	9 056	13 708	26.5	26.7	31.3	88.4	80.3	65.1
Tunisia	1 865	2 829	3 886	19.0	23.4	27.4	52.7	37.3	24.6
Western Sahara	67	112	270	31.3	33.9	38.5	76.2	57.9	42.3
Southern Africa	**10 753**	**16 325**	**21 371**	**41.2**	**43.5**	**45.9**	**23.2**	**14.4**	**9.8**
Botswana	332	506	741	38.3	42.9	43.6	74.8	54.8	55.1
Lesotho	538	720	895	50.7	51.5	52.3	64.1	57.1	50.6
Namibia	309	507	769	47.2	45.4	46.8	63.7	47.8	31.9
South Africa	9 350	14 220	18 481	40.3	42.9	45.5	15.8	8.1	4.2
Swaziland	224	372	485	48.7	49.5	49.7	63.3	47.8	31.5
Western Africa	**47 936**	**71 093**	**108 384**	**38.0**	**37.7**	**39.6**	**70.3**	**60.2**	**50.7**
Benin	1 168	2 240	3 778	33.6	40.2	40.8	68.7	59.9	43.0
Burkina Faso	2 989	4 421	7 425	46.4	47.6	47.1	92.8	93.4	93.3
Cape Verde	90	131	195	40.0	38.2	42.6	38.9	28.0	16.9
Côte d'Ivoire	3 096	5 407	8 106	30.4	29.2	30.5	75.0	65.9	45.0
Gambia	273	483	806	46.2	45.5	46.8	92.9	90.5	86.5
Ghana	4 473	7 247	11 116	49.5	49.2	49.0	56.8	53.4	49.3
Guinea	2 210	3 535	4 968	47.5	46.9	47.1	96.4	90.3	84.3
Guinea-Bissau	331	451	613	39.3	40.1	38.2	97.7	96.1	94.4
Liberia	711	719	1 509	40.4	39.8	40.3	88.9	80.4	68.6
Mali	1 963	2 508	3 517	35.0	34.6	38.4	92.3	86.2	73.6
Mauritania	603	913	1 441	42.6	42.5	43.2	79.4	62.4	62.6
Niger	1 965	3 045	5 228	33.7	32.3	31.3	97.6	97.4	97.0
Nigeria	23 353	33 165	49 144	34.4	33.6	36.9	57.4	39.4	26.8
Saint Helena	2	2	2	50.0	50.0	50.0	100.0	0.0	0.0
Senegal	2 382	3 591	5 626	40.1	40.7	43.2	89.9	84.0	77.2
Sierra Leone	1 265	1 546	2 197	52.6	50.4	51.1	82.0	78.8	72.6
Togo	1 062	1 689	2 713	39.8	38.3	38.1	66.9	62.9	57.8
ASIA EXCLUDING JAPAN	**1 052 771**	**1 533 185**	**1 964 239**	**36.7**	**38.5**	**38.4**	**76.0**	**67.5**	**57.6**
Central Asia		**21 059**	**29 095**		**46.7**	**47.0**		**25.0**	**17.8**
Kazakhstan		7 773	8 427		47.6	49.8		12.6	6.8
Kyrgyzstan		1 885	2 547		45.5	42.6		23.9	14.6
Tajikistan		1 678	2 896		46.7	46.8		41.8	31.1
Turkmenistan		1 635	2 437		46.4	47.1		39.3	33.4

TABLE A3 *(cont.)*

	Economically active population								
	Total *(Thousands)*			Female share *(% of total)*			Agricultural share of economically active women *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Uzbekistan		8 088	12 788		46.2	46.2		31.2	20.2
Eastern Asia excluding Japan	**526 764**	**737 152**	**855 786**	**43.0**	**45.0**	**45.5**	**77.1**	**71.1**	**61.8**
China [A]	504 496	704 769	817 033	43.2	45.2	45.6	78.2	73.1	64.0
China, Hong Kong SAR	2 415	3 086	3 759	33.8	39.0	47.4	1.2	0.5	0.1
China, Macao SAR									
China, mainland									
Democratic People's Republic of Korea	7 103	10 400	12 979	39.7	41.1	44.8	52.0	37.0	23.9
Mongolia	574	862	1 204	46.5	46.3	50.2	36.0	26.6	17.1
Republic of Korea	14 591	21 121	24 570	37.0	39.6	41.2	46.9	14.9	5.5
Southeastern Asia	**147 907**	**221 405**	**299 123**	**41.2**	**41.9**	**41.6**	**64.2**	**57.1**	**47.8**
Brunei Darussalam	71	131	195	23.9	35.9	43.6	5.9	0.0	0.0
Cambodia	3 209	4 930	8 029	54.0	51.6	48.3	80.0	76.4	69.8
Indonesia	55 181	84 276	115 905	34.9	37.8	36.9	55.8	53.4	44.2
Lao People's Democratic Republic	1 463	2 172	3 281	49.8	50.0	50.3	82.3	80.2	77.8
Malaysia	4 984	8 167	12 445	34.5	33.9	35.8	49.3	19.3	7.5
Myanmar	15 972	22 769	29 464	44.9	45.2	46.3	80.3	75.8	70.0
Philippines	17 861	28 019	39 967	38.4	37.1	38.8	37.0	28.1	20.9
Singapore	1 117	1 740	2 637	34.6	38.7	42.1	1.3	0.1	0.0
Thailand	23 709	33 490	39 198	46.9	45.5	46.5	74.2	60.8	47.1
Timor-Leste	242	332	461	39.7	38.0	40.6	94.8	92.1	88.2
Viet Nam	24 098	35 379	47 541	49.3	49.8	48.5	75.3	71.0	64.0
Southern Asia	**348 669**	**496 504**	**699 660**	**26.6**	**28.3**	**29.6**	**81.5**	**70.5**	**60.4**
Afghanistan	4 548	5 620	9 384	24.1	22.4	23.4	86.0	83.9	82.0
Bangladesh	38 345	56 409	78 232	37.7	38.2	40.3	80.9	69.9	57.4
Bhutan	146	150	326	25.3	18.7	33.1	97.3	96.4	97.2
India	259 177	364 665	491 326	26.8	28.2	28.6	82.6	71.5	61.8
Iran (Islamic Republic of)	11 064	18 288	30 746	19.7	24.9	30.2	50.0	40.1	33.3
Maldives	46	70	150	21.7	27.1	42.0	40.0	21.1	14.3
Nepal	5 837	8 061	12 936	33.7	40.2	45.7	98.0	98.0	97.8
Pakistan	23 563	35 980	67 292	8.1	12.2	20.3	87.7	68.7	56.9
Sri Lanka	5 943	7 261	9 268	31.3	33.0	38.2	58.0	48.6	41.6
Western Asia	**29 431**	**57 065**	**80 575**	**21.3**	**26.1**	**25.7**	**72.2**	**50.2**	**35.8**
Armenia		1 375	1 575		48.4	50.2		8.0	3.0
Azerbaijan		3 229	4 633		47.3	47.9		33.1	25.6
Bahrain	136	263	384	11.0	18.3	21.6	0.0	0.0	0.0
Cyprus	282	343	446	31.9	38.5	45.7	36.7	11.4	4.9
Georgia		2 508	2 278		47.1	46.7		20.5	11.7
Iraq	3 097	5 018	7 918	12.8	14.2	17.5	62.0	32.0	15.7

TABLE A3 *(cont.)*

	Economically active population								
	Total *(Thousands)*			Female share *(% of total)*			Agricultural share of economically active women *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Israel	1 271	2 039	2 935	36.2	43.6	47.0	3.7	1.7	0.8
Jordan	444	1 160	1 882	11.9	14.1	17.6	58.5	35.6	22.4
Kuwait	457	823	1 541	14.2	21.5	24.7	0.0	0.0	0.0
Lebanon	857	1 190	1 563	19.8	23.7	26.0	20.0	7.1	2.2
Occupied Palestinian Territory [A]	465	866	1 508	26.0	26.3	26.0	57.9	36.0	22.2
Oman	341	778	1 123	17.3	12.5	20.4	25.4	17.5	10.5
Qatar	106	284	976	9.4	13.0	11.0	0.0	0.0	0.0
Saudi Arabia	2 415	5 752	9 570	9.9	11.2	16.0	25.1	7.6	1.8
Syrian Arab Republic	2 020	4 240	7 365	13.6	22.0	21.7	78.2	65.8	56.0
Turkey	15 299	22 518	25 942	25.8	28.1	25.5	87.9	79.1	66.3
United Arab Emirates	548	1 309	2 914	5.1	11.8	15.3	0.0	0.0	0.0
Yemen	1 693	3 370	6 022	20.3	19.8	25.1	98.3	83.2	61.9
LATIN AMERICA AND THE CARIBBEAN	**125 954**	**196 316**	**280 321**	**30.4**	**35.6**	**41.8**	**20.6**	**11.2**	**7.4**
Caribbean	**10 733**	**14 496**	**18 380**	**35.6**	**35.3**	**40.8**	**24.5**	**15.5**	**12.2**
Anguilla	2	4	7	50.0	25.0	42.9	0.0	0.0	0.0
Antigua and Barbuda	26	27	38	34.6	37.0	42.1	22.2	10.0	12.5
Aruba	22	32	46	36.4	34.4	43.5	25.0	18.2	10.0
Bahamas	88	140	186	43.2	45.0	48.4	2.6	1.6	0.0
Barbados	111	144	154	44.1	47.9	48.1	8.2	4.3	2.7
British Virgin Islands	4	7	10	25.0	42.9	40.0	0.0	0.0	25.0
Cayman Islands	6	13	25	33.3	38.5	40.0	50.0	20.0	10.0
Cuba	3 495	4 853	5 239	31.0	35.4	39.7	10.4	7.4	5.0
Dominica	26	27	29	38.5	37.0	41.4	20.0	20.0	8.3
Dominican Republic	1 834	2 925	4 491	27.5	27.1	44.8	11.1	8.8	7.3
Grenada	32	40	45	37.5	35.0	40.0	25.0	14.3	11.1
Guadeloupe	126	184	213	44.4	47.3	50.7	10.7	2.3	0.0
Haiti	2 344	2 692	3 940	44.7	33.2	33.1	61.0	53.9	44.0
Jamaica	951	1 177	1 218	46.6	47.2	44.4	18.1	13.5	10.9
Martinique	127	170	185	45.7	49.4	51.9	6.9	3.6	1.0
Montserrat	4	4	3	50.0	25.0	33.3	0.0	0.0	0.0
Netherlands Antilles	69	82	98	37.7	45.1	49.0	0.0	0.0	0.0
Puerto Rico	909	1 278	1 512	29.6	37.9	43.1	0.4	0.4	0.2
Saint Kitts and Nevis	15	17	23	40.0	35.3	39.1	16.7	16.7	11.1
Saint Lucia	39	61	84	30.8	41.0	41.7	25.0	16.0	11.4
Saint Vincent and the Grenadines	32	43	54	31.3	34.9	40.7	20.0	13.3	13.6
Trinidad and Tobago	428	519	716	35.5	38.9	44.4	8.6	4.5	2.5
Turks and Caicos Islands	3	6	14	33.3	33.3	42.9	0.0	0.0	16.7
United States Virgin Islands	40	51	50	50.0	49.0	52.0	25.0	16.0	11.5

TABLE A3 *(cont.)*

	Economically active population								
	Total *(Thousands)*			Female share *(% of total)*			Agricultural share of economically active women *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Central America	**29 939**	**46 462**	**64 495**	**30.8**	**31.7**	**36.5**	**18.3**	**9.9**	**6.1**
Belize	39	75	131	17.9	29.3	36.6	14.3	4.5	2.1
Costa Rica	849	1 411	2 109	27.7	31.4	35.2	4.7	6.1	5.5
El Salvador	1 592	2 201	2 587	33.9	36.3	41.1	8.5	6.5	5.3
Guatemala	2 313	2 941	5 367	25.6	23.9	38.3	16.9	14.2	10.0
Honduras	1 144	1 999	2 782	26.7	32.3	31.5	40.3	22.2	15.8
Mexico	22 318	35 202	47 529	31.3	32.2	36.6	19.2	9.6	5.5
Nicaragua	1 016	1 531	2 395	33.2	28.9	32.2	15.7	7.0	3.5
Panama	668	1 102	1 595	31.1	32.9	37.7	4.8	2.8	1.5
South America	**85 282**	**135 358**	**197 446**	**29.6**	**37.0**	**43.6**	**20.8**	**11.1**	**7.3**
Argentina	10 231	14 320	19 094	28.6	36.7	41.8	3.1	2.6	1.9
Bolivia (Plurinational State of)	1 908	2 837	4 849	32.8	42.0	45.5	53.3	43.3	37.8
Brazil	44 710	70 889	101 026	29.4	36.9	44.2	26.3	11.2	6.1
Chile	3 756	5 632	7 302	29.0	31.9	37.1	6.4	5.7	5.1
Colombia	8 764	15 077	23 927	33.0	39.9	46.6	23.0	11.5	7.8
Ecuador	2 543	4 260	6 320	24.9	33.6	40.8	21.8	14.7	11.2
Falkland Islands (Malvinas)	1	1	2	0.0	0.0	50.0			
French Guiana	29	56	91	37.9	39.3	46.2	18.2	13.6	7.1
Guyana	252	301	347	25.0	35.5	35.4	11.1	6.5	3.3
Paraguay	1 267	2 045	3 358	38.4	39.6	45.9	8.6	6.6	4.2
Peru	5 597	9 948	15 497	29.6	40.1	44.5	25.1	20.9	17.0
Suriname	106	142	195	32.1	33.1	36.9	20.6	14.9	11.1
Uruguay	1 242	1 511	1 654	37.8	41.4	44.4	3.8	3.8	3.5
Venezuela (Bolivarian Republic of)	4 876	8 339	13 784	25.4	31.1	39.9	1.9	1.5	0.8
OCEANIA EXCLUDING AUSTRALIA AND NEW ZEALAND	**1 903**	**3 018**	**4 415**	**39.3**	**44.1**	**45.8**	**80.5**	**73.3**	**67.0**
American Samoa	11	20	28	27.3	35.0	39.3	66.7	42.9	27.3
Cook Islands	6	7	8	33.3	42.9	37.5	50.0	33.3	33.3
Fiji	208	291	348	21.2	31.6	32.8	27.3	26.1	23.7
French Polynesia	56	89	122	33.9	38.2	39.3	47.4	35.3	25.0
Guam	43	67	88	37.2	37.3	40.9	25.0	20.0	13.9
Kiribati	22	35	48	36.4	40.0	43.8	25.0	21.4	14.3
Marshall Islands		23	31		39.1	45.2		22.2	14.3
Micronesia (Federated States of)		49	54		36.7	40.7		22.2	13.6
Nauru	3	5	5	33.3	40.0	40.0	0.0	0.0	0.0
New Caledonia	49	81	108	36.7	37.0	38.0	55.6	43.3	31.7
Niue	1	1	1	0.0	0.0	0.0			
Northern Mariana Islands		26	43		38.5	44.2		20.0	15.8
Palau		8	10		37.5	40.0		33.3	25.0

TABLE A3 *(cont.)*

	Economically active population								
	Total *(Thousands)*			Female share *(% of total)*			Agricultural share of economically active women *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Papua New Guinea	1 278	1 987	3 054	43.3	48.0	49.0	91.5	86.9	79.0
Samoa	54	61	65	33.3	32.8	33.8	50.0	35.0	27.3
Solomon Islands	85	144	222	40.0	40.3	38.7	85.3	84.5	80.2
Tokelau	1	1	0	0.0	0.0				
Tonga	25	33	41	20.0	36.4	43.9	60.0	33.3	27.8
Tuvalu	3	4	4	33.3	25.0	50.0	0.0	0.0	0.0
Vanuatu	54	81	129	44.4	46.9	46.5	54.2	42.1	30.0
Wallis and Futuna Islands	4	5	6	25.0	40.0	33.3	100.0	50.0	50.0
COUNTRIES IN DEVELOPED REGIONS	**541 644**	**574 678**	**625 428**	**42.3**	**44.3**	**46.0**	**13.4**	**6.2**	**3.0**
ASIA AND OCEANIA	**64 518**	**77 780**	**77 707**	**38.4**	**40.8**	**42.7**	**12.4**	**5.7**	**2.5**
Australia	6 750	9 068	11 315	36.7	42.7	45.7	3.9	3.8	3.8
Japan	56 431	66 883	64 067	38.7	40.5	42.1	13.5	6.0	2.1
New Zealand	1 337	1 829	2 325	34.0	44.0	46.4	7.0	6.8	5.9
EUROPE	**351 529**	**341 936**	**363 492**	**43.4**	**44.6**	**46.6**	**17.5**	**8.6**	**4.1**
Eastern Europe	**189 751**	**149 744**	**147 999**	**48.7**	**47.5**	**48.6**	**22.6**	**11.7**	**5.5**
Belarus		5 016	4 880		48.4	49.1		9.6	3.4
Bulgaria	4 718	3 709	3 334	47.9	47.9	46.8	21.9	8.7	2.4
Czech Republic		5 160	5 242		44.3	44.5		7.0	3.2
Czechoslovakia [A]	8 116			45.8			11.8		
Hungary	5 058	4 188	4 318	43.4	43.4	45.6	15.2	8.2	3.7
Poland	17 568	17 438	17 275	45.5	45.5	45.7	31.9	23.3	13.5
Republic of Moldova		1 962	1 343		48.7	52.6		21.0	8.5
Romania	10 508	12 122	9 307	46.8	46.3	45.7	45.3	21.3	8.7
Russian Federation		72 466	76 217		47.8	49.8		7.8	4.0
Slovakia		2 481	2 757		44.7	44.9		7.4	3.4
Ukraine		25 202	23 326		50.0	49.7		12.6	5.7
USSR [A]	137 459			49.7			20.3		
Yugoslav SFR [A]	6 324			45.8			32.2		
Northern Europe	**40 445**	**46 413**	**51 420**	**40.6**	**45.0**	**46.6**	**2.7**	**2.4**	**1.4**
Denmark	2 666	2 822	2 914	44.9	45.3	47.2	2.8	2.4	1.3
Estonia		713	688		48.2	50.7		9.0	4.6
Faroe Islands	22	22	26	40.9	40.9	46.2	0.0	0.0	0.0
Finland	2 468	2 490	2 724	46.2	47.5	48.3	10.3	5.1	2.7
Iceland	121	153	195	44.6	47.1	46.2	3.7	4.2	2.2
Ireland	1 246	1 466	2 328	27.8	37.7	43.6	6.1	2.5	1.1
Latvia		1 207	1 219		48.1	48.5		9.8	4.7
Lithuania		1 790	1 544		47.7	49.8		9.8	3.6

TABLE A3 *(cont.)*

	Economically active population								
	Total *(Thousands)*			Female share *(% of total)*			Agricultural share of economically active women *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Norway	2 006	2 234	2 616	41.4	45.8	47.7	6.0	3.6	2.8
Sweden	4 437	4 555	5 029	45.1	47.4	47.6	3.7	2.4	1.7
United Kingdom	27 479	28 961	32 137	39.4	44.3	46.1	1.4	1.0	0.8
Southern Europe	**46 186**	**61 050**	**71 677**	**32.8**	**39.0**	**43.0**	**21.8**	**12.8**	**6.5**
Albania	1 296	1 308	1 450	43.1	40.8	42.8	62.4	55.8	42.3
Andorra	16	28	41	31.3	35.7	41.5	20.0	10.0	5.9
Bosnia and Herzegovina		1 636	1 876		46.1	46.6		10.6	3.0
Croatia		2 104	1 938		43.4	45.1		10.3	2.9
Gibraltar	12	12	15	33.3	33.3	40.0	25.0	25.0	0.0
Greece	3 881	4 537	5 218	33.8	36.7	41.2	42.3	24.9	15.3
Holy See	0	0	0						
Italy	22 134	23 058	25 775	33.7	36.8	42.1	14.5	7.2	3.5
Malta	120	140	172	23.3	26.4	34.3	3.6	0.0	0.0
Montenegro			305			44.9			10.9
Portugal	4 467	4 880	5 696	39.6	44.6	46.9	33.6	18.7	12.3
San Marino	9	11	15	33.3	36.4	40.0	33.3	0.0	0.0
Serbia [A]			4 806			44.7			10.9
Serbia and Montenegro [A]		4 893			45.0			25.4	
Slovenia		949	1 025		46.0	46.1		3.7	0.6
Spain	14 251	16 688	22 439	28.3	37.7	42.8	18.2	8.2	3.9
The former Yugoslav Republic of Macedonia		806	906		37.2	39.4		16.7	6.2
Western Europe	**75 147**	**84 729**	**92 396**	**38.2**	**43.1**	**46.1**	**7.3**	**3.3**	**1.5**
Austria	3 244	3 845	4 295	38.4	43.0	46.1	12.2	7.0	3.3
Belgium			4 713			45.4			0.9
Belgium-Luxembourg [A]	4 040	4 337		35.8	41.1		2.1	1.5	
France	24 001	25 382	28 232	40.0	44.9	46.9	7.4	3.4	1.4
Germany	35 415	39 754	41 914	38.4	42.5	45.6	8.1	3.0	1.3
Liechtenstein	11	15	18	36.4	40.0	44.4	0.0	0.0	0.0
Luxembourg			228			44.7			1.0
Monaco	11	14	16	36.4	42.9	43.8	0.0	0.0	0.0
Netherlands	5 388	7 454	8 713	31.2	41.3	45.9	3.0	2.9	2.0
Switzerland	3 037	3 928	4 267	36.5	43.3	46.6	4.4	3.9	3.0
NORTHERN AMERICA	**125 597**	**154 962**	**184 229**	**41.2**	**45.4**	**46.2**	**2.1**	**1.3**	**1.0**
Bermuda	28	32	34	39.3	43.8	44.1	0.0	0.0	0.0
Canada	12 102	15 023	19 320	39.7	45.0	47.5	6.1	2.3	1.9
Greenland	25	29	30	40.0	44.8	46.7	0.0	0.0	0.0
Saint Pierre and Miquelon	3	3	3	33.3	33.3	33.3	0.0	0.0	0.0
United States of America	113 439	139 875	164 842	41.4	45.4	46.0	1.6	1.2	0.9

TABLE A4
Economically active population, agricultural share of economically active population and female share of economically active in agriculture in 1980, 1995 and 2010

	Economically active population								
	Total *(Thousands)*			Agricultural share *(% of total)*			Female share of economically active in agriculture *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
WORLD	**1 894 978**	**2 575 394**	**3 282 308**	**50.4**	**46.1**	**39.9**	**40.4**	**41.9**	**42.7**
COUNTRIES IN DEVELOPING REGIONS	**1 353 280**	**2 000 716**	**2 656 880**	**65.3**	**57.2**	**48.2**	**40.1**	**42.1**	**42.9**
AFRICA	**172 652**	**268 197**	**407 905**	**68.4**	**60.3**	**53.1**	**44.3**	**46.4**	**48.5**
Sub-Saharan Africa	**147 699**	**227 175**	**346 919**	**71.9**	**65.4**	**58.4**	**46.0**	**47.1**	**48.7**
Eastern Africa	**61 341**	**97 031**	**152 689**	**84.7**	**80.6**	**74.5**	**49.6**	**50.6**	**51.3**
Burundi	1 977	2 978	4 260	93.2	91.4	89.2	55.9	55.9	56.0
Comoros	151	250	387	80.8	75.6	69.5	50.0	50.3	52.0
Djibouti	133	249	381	84.2	79.9	74.0	46.4	47.2	46.5
Eritrea		1 200	2 086		78.7	73.7		44.6	43.6
Ethiopia		24 306	41 929		84.4	77.3		43.0	45.5
Ethiopia PDR [A]	14 833			88.9			41.0		
Kenya	6 718	12 139	18 887	82.2	77.6	70.6	49.0	49.5	48.6
Madagascar	3 880	5 966	10 060	82.3	76.9	70.1	54.7	53.9	53.5
Malawi	2 876	4 302	6 542	87.4	85.1	79.1	56.7	56.1	59.2
Mauritius	370	485	589	27.3	14.0	8.1	29.7	26.5	25.0
Mozambique	5 951	7 547	10 778	84.8	83.6	80.5	58.6	63.4	65.2
Réunion	170	270	362	28.2	4.8	1.4	10.4	7.7	20.0
Rwanda	2 328	2 327	4 722	93.1	91.5	89.4	55.3	56.1	57.0
Seychelles	28	33	40	85.7	81.8	72.5	50.0	48.1	51.7
Somalia	2 437	2 565	3 731	77.2	72.3	65.6	44.4	45.3	45.9
Uganda	5 679	9 225	14 896	87.1	82.4	74.8	49.5	49.9	49.5
United Republic of Tanzania	9 084	14 855	22 339	85.8	82.6	75.9	53.7	54.1	55.0
Zambia	1 985	3 481	5 146	74.7	71.8	63.3	41.2	47.6	46.5
Zimbabwe	2 741	4 853	5 554	73.0	66.0	56.5	54.3	55.3	53.3
Middle Africa	**21 068**	**33 670**	**50 767**	**73.9**	**67.0**	**57.7**	**49.4**	**50.1**	**50.8**
Angola	3 421	5 397	8 447	76.1	73.0	69.3	52.4	52.6	55.0
Cameroon	3 402	5 086	7 622	74.5	65.3	47.7	50.1	47.4	47.3
Central African Republic	1 018	1 476	2 030	84.5	76.6	63.3	49.8	50.2	49.9
Chad	1 547	2 790	4 623	85.6	79.7	65.7	28.9	50.8	56.9
Congo	700	1 099	1 524	57.3	44.4	32.0	56.6	60.0	56.5
Democratic Republic of the Congo	10 558	17 137	25 488	71.5	64.8	57.3	51.3	49.5	48.8
Equatorial Guinea	87	174	268	77.0	71.8	64.9	40.3	40.8	43.7
Gabon	305	472	708	65.6	44.5	25.7	50.5	49.5	45.6
Sao Tome and Principe	30	39	57	70.0	64.1	56.1	38.1	44.0	50.0

TABLE A4 *(cont.)*

	Economically active population								
	Total *(Thousands)*			Agricultural share *(% of total)*			Female share of economically active in agriculture *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Northern Africa	**31 554**	**50 078**	**74 694**	**53.1**	**37.8**	**28.3**	**30.1**	**37.0**	**42.8**
Algeria	4 555	9 018	14 950	35.9	25.9	21.2	41.5	50.4	52.7
Egypt	11 780	18 531	27 492	53.8	35.0	25.1	25.9	34.9	40.3
Libyan Arab Jamahiriya	838	1 517	2 425	22.4	7.6	3.0	37.2	50.0	69.9
Morocco	5 848	9 015	11 963	53.0	37.1	25.5	29.0	38.9	47.7
Sudan	6 601	9 056	13 708	72.1	65.1	51.5	32.5	32.9	39.5
Tunisia	1 865	2 829	3 886	37.0	25.4	20.5	27.1	34.4	32.8
Western Sahara	67	112	270	56.7	41.1	30.4	42.1	47.8	53.7
Southern Africa	**10 753**	**16 325**	**21 371**	**21.8**	**15.3**	**10.6**	**43.8**	**40.9**	**42.5**
Botswana	332	506	741	61.4	44.9	42.2	46.6	52.4	56.9
Lesotho	538	720	895	45.2	43.2	39.3	72.0	68.2	67.3
Namibia	309	507	769	57.3	45.4	33.6	52.5	47.8	44.6
South Africa	9 350	14 220	18 481	17.2	11.1	6.5	37.1	31.1	29.6
Swaziland	224	372	485	52.7	39.0	28.9	58.5	60.7	54.3
Western Africa	**47 936**	**71 093**	**108 384**	**65.7**	**55.6**	**46.4**	**40.7**	**40.9**	**43.3**
Benin	1 168	2 240	3 778	67.0	58.7	44.3	34.5	41.1	39.6
Burkina Faso	2 989	4 421	7 425	92.2	92.3	92.1	46.7	48.1	47.7
Cape Verde	90	131	195	36.7	26.7	16.9	42.4	40.0	42.4
Côte d'Ivoire	3 096	5 407	8 106	64.6	54.1	37.9	35.3	35.6	36.2
Gambia	273	483	806	84.6	80.5	75.9	50.6	51.2	53.3
Ghana	4 473	7 247	11 116	61.6	58.2	54.5	45.6	45.1	44.3
Guinea	2 210	3 535	4 968	90.9	85.6	79.8	50.4	49.5	49.7
Guinea-Bissau	331	451	613	87.3	84.0	79.3	43.9	45.9	45.5
Liberia	711	719	1 509	76.8	70.1	62.1	46.7	45.6	44.5
Mali	1 963	2 508	3 517	88.3	83.0	74.9	36.6	35.9	37.7
Mauritania	603	913	1 441	71.1	53.9	50.2	47.6	49.2	53.9
Niger	1 965	3 045	5 228	90.2	87.2	82.9	36.5	36.1	36.6
Nigeria	23 353	33 165	49 144	53.9	38.0	24.9	36.6	34.8	39.7
Saint Helena	2	2	2	50.0	50.0	50.0	100.0	0.0	0.0
Senegal	2 382	3 591	5 626	80.4	75.0	70.2	44.9	45.5	47.4
Sierra Leone	1 265	1 546	2 197	73.0	67.9	60.1	59.0	58.5	61.7
Togo	1 062	1 689	2 713	68.7	62.7	53.4	38.8	38.4	41.3
ASIA EXCLUDING JAPAN	**1 052 771**	**1 533 185**	**1 964 239**	**68.6**	**61.1**	**52.0**	**40.7**	**42.5**	**42.6**
Central Asia		**21 059**	**29 095**		**27.6**	**20.5**		**42.4**	**41.0**
Kazakhstan		7 773	8 427		19.7	13.8		30.4	24.4
Kyrgyzstan		1 885	2 547		28.9	20.8		37.7	29.8
Tajikistan		1 678	2 896		37.4	27.4		52.2	53.0
Turkmenistan		1 635	2 437		35.4	29.7		51.6	53.0
Uzbekistan		8 088	12 788		31.2	21.4		46.2	43.5

TABLE A4 *(cont.)*

	Economically active population								
	Total *(Thousands)*			Agricultural share *(% of total)*			Female share of economically active in agriculture *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Eastern Asia excluding Japan	**526 764**	**737 152**	**855 786**	**72.4**	**67.2**	**58.6**	**45.8**	**47.6**	**47.9**
China [A]	504 496	704 769	817 033	73.9	69.4	60.8	45.8	47.7	47.9
China, Hong Kong SAR	2 415	3 086	3 759	1.3	0.6	0.2	31.3	31.6	25.0
China, Macao SAR	..	..	..	..	..	..	..	..	..
China, mainland	..	..	..	..	..	..	..	..	..
Democratic People's Republic of Korea	7 103	10 400	12 979	44.2	33.8	23.3	46.7	45.0	46.0
Mongolia	574	862	1 204	39.7	28.0	17.9	42.1	44.0	47.9
Republic of Korea	14 591	21 121	24 570	36.9	13.5	5.2	47.1	43.8	43.8
Southeastern Asia	**147 907**	**221 405**	**299 123**	**63.2**	**56.0**	**46.8**	**41.9**	**42.7**	**42.5**
Brunei Darussalam	71	131	195	5.6	1.5	0.5	25.0	0.0	0.0
Cambodia	3 209	4 930	8 029	75.5	71.9	65.9	57.3	54.9	51.2
Indonesia	55 181	84 276	115 905	57.8	51.7	41.4	33.7	39.0	39.3
Lao People's Democratic Republic	1 463	2 172	3 281	79.8	77.5	74.9	51.3	51.8	52.3
Malaysia	4 984	8 167	12 445	40.9	22.8	12.7	41.7	28.6	21.0
Myanmar	15 972	22 769	29 464	75.9	71.9	67.1	47.5	47.6	48.3
Philippines	17 861	28 019	39 967	51.5	42.6	33.7	27.6	24.5	24.0
Singapore	1 117	1 740	2 637	1.5	0.2	0.1	29.4	25.0	0.0
Thailand	23 709	33 490	39 198	70.9	60.3	48.5	49.1	45.9	45.0
Timor-Leste	242	332	461	83.9	81.9	79.6	44.8	42.6	45.0
Viet Nam	24 098	35 379	47 541	73.2	69.4	63.2	50.7	51.0	49.1
Southern Asia	**348 669**	**496 504**	**699 660**	**67.2**	**59.3**	**51.1**	**32.3**	**33.6**	**34.9**
Afghanistan	4 548	5 620	9 384	70.4	65.8	59.7	29.4	28.5	32.1
Bangladesh	38 345	56 409	78 232	71.9	59.9	45.4	42.4	44.5	51.0
Bhutan	146	150	326	93.8	92.7	92.9	26.3	19.4	34.7
India	259 177	364 665	491 326	68.2	61.4	54.4	32.4	32.8	32.4
Iran (Islamic Republic of)	11 064	18 288	30 746	39.0	29.4	21.6	25.2	33.9	46.4
Maldives	46	70	150	52.2	28.6	14.7	16.7	20.0	40.9
Nepal	5 837	8 061	12 936	93.4	93.4	92.9	35.4	42.2	48.1
Pakistan	23 563	35 980	67 292	58.5	45.7	39.0	12.2	18.4	29.6
Sri Lanka	5 943	7 261	9 268	52.2	47.0	42.5	34.8	34.2	37.4
Western Asia	**29 431**	**57 065**	**80 575**	**44.0**	**30.4**	**19.2**	**35.0**	**43.0**	**47.9**
Armenia		1 375	1 575		14.9	9.4		25.9	16.2
Azerbaijan		3 229	4 633		29.0	22.8		53.8	53.9
Bahrain	136	263	384	3.7	1.5	0.5	0.0	0.0	0.0
Cyprus	282	343	446	25.5	10.8	5.4	45.8	40.5	41.7
Georgia		2 508	2 278		22.8	15.1		42.3	36.2
Iraq	3 097	5 018	7 918	26.6	11.9	5.5	29.7	38.2	50.3
Israel	1 271	2 039	2 935	6.1	3.2	1.7	22.1	22.7	21.6

TABLE A4 *(cont.)*

	Economically active population								
	Total *(Thousands)*			Agricultural share *(% of total)*			Female share of economically active in agriculture *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Jordan	444	1 160	1 882	16.7	11.3	6.3	41.9	44.3	62.2
Kuwait	457	823	1 541	2.0	1.2	1.0	0.0	0.0	0.0
Lebanon	857	1 190	1 563	14.0	5.1	1.8	28.3	32.8	32.1
Occupied Palestinian Territory [A]	465	866	1 508	23.2	14.8	8.0	64.8	64.1	72.5
Oman	341	778	1 123	47.2	40.6	28.5	9.3	5.4	7.5
Qatar	106	284	976	2.8	1.8	0.7	0.0	0.0	0.0
Saudi Arabia	2 415	5 752	9 570	43.0	14.1	5.1	5.8	6.0	5.7
Syrian Arab Republic	2 020	4 240	7 365	33.6	28.5	20.0	31.7	50.7	60.7
Turkey	15 299	22 518	25 942	56.2	46.2	32.3	40.4	48.2	52.3
United Arab Emirates	548	1 309	2 914	4.6	6.3	3.1	0.0	0.0	0.0
Yemen	1 693	3 370	6 022	67.9	52.4	38.8	29.3	31.4	40.1
LATIN AMERICA AND THE CARIBBEAN	**125 954**	**196 316**	**280 321**	**33.6**	**22.0**	**14.8**	**18.6**	**18.1**	**20.9**
Caribbean	**10 733**	**14 496**	**18 380**	**33.6**	**25.3**	**20.4**	**26.0**	**21.6**	**24.5**
Anguilla	2	4	7	50.0	25.0	14.3	0.0	0.0	0.0
Antigua and Barbuda	26	27	38	34.6	25.9	21.1	22.2	14.3	25.0
Aruba	22	32	46	31.8	25.0	19.6	28.6	25.0	22.2
Bahamas	88	140	186	5.7	4.3	2.7	20.0	16.7	0.0
Barbados	111	144	154	9.9	5.6	2.6	36.4	37.5	50.0
British Virgin Islands	4	7	10	25.0	28.6	20.0	0.0	0.0	50.0
Cayman Islands	6	13	25	33.3	23.1	20.0	50.0	33.3	20.0
Cuba	3 495	4 853	5 239	23.7	16.4	11.1	13.5	16.1	17.9
Dominica	26	27	29	34.6	25.9	20.7	22.2	28.6	16.7
Dominican Republic	1 834	2 925	4 491	31.7	20.8	10.5	9.6	11.5	31.2
Grenada	32	40	45	34.4	25.0	20.0	27.3	20.0	22.2
Guadeloupe	126	184	213	18.3	4.3	1.4	26.1	25.0	0.0
Haiti	2 344	2 692	3 940	70.9	67.1	58.8	38.4	26.7	24.8
Jamaica	951	1 177	1 218	31.1	22.5	17.5	27.0	28.3	27.7
Martinique	127	170	185	12.6	5.3	2.2	25.0	33.3	25.0
Montserrat	4	4	3	25.0	25.0	33.3	0.0	0.0	0.0
Netherlands Antilles	69	82	98	0.0	0.0	0.0	..	..	..
Puerto Rico	909	1 278	1 512	5.9	3.1	1.1	1.9	5.1	5.9
Saint Kitts and Nevis	15	17	23	33.3	23.5	21.7	20.0	25.0	20.0
Saint Lucia	39	61	84	33.3	24.6	20.2	23.1	26.7	23.5
Saint Vincent and the Grenadines	32	43	54	34.4	25.6	20.4	18.2	18.2	27.3
Trinidad and Tobago	428	519	716	10.7	9.6	6.6	28.3	18.0	17.0
Turks and Caicos Islands	3	6	14	33.3	33.3	21.4	0.0	0.0	33.3
United States Virgin Islands	40	51	50	32.5	23.5	18.0	38.5	33.3	33.3

TABLE A4 *(cont.)*

	Economically active population								
	Total *(Thousands)*			Agricultural share *(% of total)*			Female share of economically active in agriculture *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Central America	**29 939**	**46 462**	**64 495**	**37.5**	**26.8**	**18.6**	**15.0**	**11.7**	**11.9**
Belize	39	75	131	41.0	29.3	23.7	6.3	4.5	3.2
Costa Rica	849	1 411	2 109	32.4	22.5	15.2	4.0	8.5	12.8
El Salvador	1 592	2 201	2 587	39.8	31.6	22.7	7.3	7.5	9.6
Guatemala	2 313	2 941	5 367	52.3	50.4	38.4	8.3	6.8	10.0
Honduras	1 144	1 999	2 782	56.8	35.9	24.0	18.9	19.9	20.7
Mexico	22 318	35 202	47 529	35.3	24.4	16.2	17.0	12.7	12.3
Nicaragua	1 016	1 531	2 395	37.7	25.4	14.7	13.8	8.0	7.6
Panama	668	1 102	1 595	28.6	23.4	15.5	5.2	3.9	3.6
South America	**85 282**	**135 358**	**197 446**	**32.3**	**20.0**	**13.0**	**19.1**	**20.5**	**24.6**
Argentina	10 231	14 320	19 094	12.8	10.2	7.4	6.9	9.3	10.7
Bolivia (Plurinational State of)	1 908	2 837	4 849	52.8	45.3	41.1	33.0	40.1	41.8
Brazil	44 710	70 889	101 026	36.5	19.5	11.0	21.2	21.2	24.5
Chile	3 756	5 632	7 302	20.4	17.2	13.2	9.2	10.6	14.2
Colombia	8 764	15 077	23 927	38.9	22.9	14.8	19.5	19.9	24.8
Ecuador	2 543	4 260	6 320	38.7	28.0	18.5	14.0	17.6	24.8
Falkland Islands (Malvinas)	1	1	2	0.0	0.0	0.0			
French Guiana	29	56	91	31.0	19.6	13.2	22.2	27.3	25.0
Guyana	252	301	347	26.6	19.3	14.7	10.4	12.1	7.8
Paraguay	1 267	2 045	3 358	39.0	32.1	24.8	8.5	8.1	7.7
Peru	5 597	9 948	15 497	39.1	31.0	24.2	19.0	27.0	31.3
Suriname	106	142	195	23.6	19.7	16.9	28.0	25.0	24.2
Uruguay	1 242	1 511	1 654	15.4	13.3	11.2	9.4	11.9	14.0
Venezuela (Bolivarian Republic of)	4 876	8 339	13 784	14.8	10.1	5.3	3.3	4.6	6.4
OCEANIA EXCLUDING AUSTRALIA AND NEW ZEALAND	**1 903**	**3 018**	**4 415**	**72.1**	**65.8**	**59.0**	**43.8**	**49.1**	**52.0**
American Samoa	11	20	28	45.5	40.0	28.6	40.0	37.5	37.5
Cook Islands	6	7	8	50.0	42.9	25.0	33.3	33.3	50.0
Fiji	208	291	348	46.2	41.2	35.9	12.5	20.0	21.6
French Polynesia	56	89	122	48.2	38.2	27.0	33.3	35.3	36.4
Guam	43	67	88	37.2	29.9	22.7	25.0	25.0	25.0
Kiribati	22	35	48	36.4	28.6	22.9	25.0	30.0	27.3
Marshall Islands		23	31		30.4	22.6		28.6	28.6
Micronesia (Federated States of)		49	54		28.6	22.2		28.6	25.0
Nauru	3	5	5	33.3	20.0	20.0	0.0	0.0	0.0
New Caledonia	49	81	108	49.0	39.5	30.6	41.7	40.6	39.4
Niue	1	1	1	100.0	0.0	0.0	0.0		
Northern Mariana Islands		26	43		30.8	23.3		25.0	30.0
Palau		8	10		25.0	20.0		50.0	50.0

TABLE A4 *(cont.)*

	Economically active population								
	Total *(Thousands)*			Agricultural share *(% of total)*			Female share of economically active in agriculture *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Papua New Guinea	1 278	1 987	3 054	82.7	77.9	69.4	47.9	53.5	55.8
Samoa	54	61	65	48.1	39.3	27.7	34.6	29.2	33.3
Solomon Islands	85	144	222	77.6	73.6	67.6	43.9	46.2	46.0
Tokelau	1	1	0	0.0	0.0				
Tonga	25	33	41	48.0	39.4	26.8	25.0	30.8	45.5
Tuvalu	3	4	4	33.3	25.0	25.0	0.0	0.0	0.0
Vanuatu	54	81	129	50.0	40.7	30.2	48.1	48.5	46.2
Wallis and Futuna Islands	4	5	6	50.0	40.0	33.3	50.0	50.0	50.0
COUNTRIES IN DEVELOPED REGIONS	**541 644**	**574 678**	**625 428**	**13.1**	**7.5**	**4.2**	**43.4**	**36.9**	**32.7**
ASIA AND OCEANIA	**64 518**	**77 780**	**77 707**	**10.5**	**5.5**	**2.6**	**45.4**	**42.7**	**40.8**
Australia	6 750	9 068	11 315	6.5	5.0	3.9	22.1	32.8	44.9
Japan	56 431	66 883	64 067	11.0	5.4	2.2	47.6	44.5	40.3
New Zealand	1 337	1 829	2 325	11.2	9.6	7.9	21.3	31.3	34.8
EUROPE	**351 529**	**341 936**	**363 492**	**16.9**	**10.2**	**5.9**	**44.9**	**37.5**	**32.4**
Eastern Europe	**189 751**	**149 744**	**147 999**	**23.0**	**15.1**	**9.4**	**47.8**	**36.9**	**28.5**
Belarus		5 016	4 880		16.2	8.9		28.8	18.7
Bulgaria	4 718	3 709	3 334	20.3	9.8	3.7	51.9	42.7	30.6
Czech Republic		5 160	5 242		9.7	6.2		32.1	23.1
Czechoslovakia [A]	8 116			13.3			40.7		
Hungary	5 058	4 188	4 318	18.4	12.8	7.4	35.9	27.7	22.7
Poland	17 568	17 438	17 275	29.8	24.5	17.0	48.7	43.4	36.2
Republic of Moldova		1 962	1 343		27.5	14.9		37.2	30.0
Romania	10 508	12 122	9 307	35.0	19.2	9.2	60.6	51.4	43.2
Russian Federation		72 466	76 217		12.1	8.0		31.1	24.7
Slovakia		2 481	2 757		10.6	7.1		31.2	21.5
Ukraine		25 202	23 326		16.9	10.3		37.4	27.4
USSR [A]	137 459			21.8			46.2		
Yugoslav SFR [A]	6 324			27.5			53.5		
Northern Europe	**40 445**	**46 413**	**51 420**	**4.6**	**4.0**	**2.5**	**23.7**	**26.3**	**25.4**
Denmark	2 666	2 822	2 914	6.9	4.6	2.5	18.5	23.7	24.3
Estonia		713	688		12.9	8.9		33.7	26.2
Faroe Islands	22	22	26	4.5	4.5	3.8	0.0	0.0	0.0
Finland	2 468	2 490	2 724	12.1	6.8	3.6	39.3	35.3	36.1
Iceland	121	153	195	9.9	9.2	6.2	16.7	21.4	16.7
Ireland	1 246	1 466	2 328	18.6	11.5	6.6	9.1	8.3	7.2
Latvia		1 207	1 219		13.8	9.2		34.1	25.0
Lithuania		1 790	1 544		15.1	8.0		31.0	22.6

TABLE A4 *(cont.)*

	Economically active population								
	Total *(Thousands)*			Agricultural share *(% of total)*			Female share of economically active in agriculture *(%)*		
	1980	1995	2010	1980	1995	2010	1980	1995	2010
Norway	2 006	2 234	2 616	8.2	5.3	3.4	30.3	31.1	39.8
Sweden	4 437	4 555	5 029	6.1	3.7	2.3	27.3	30.0	36.0
United Kingdom	27 479	28 961	32 137	2.6	2.0	1.5	20.6	21.7	24.9
Southern Europe	**46 186**	**61 050**	**71 677**	**18.6**	**11.8**	**6.2**	**38.5**	**42.4**	**45.0**
Albania	1 296	1 308	1 450	57.6	51.5	41.8	46.6	44.3	43.2
Andorra	16	28	41	18.8	10.7	4.9	33.3	33.3	50.0
Bosnia and Herzegovina		1 636	1 876		8.1	2.3		60.6	59.1
Croatia		2 104	1 938		11.7	4.4		38.1	29.4
Gibraltar	12	12	15	16.7	8.3	6.7	50.0	100.0	0.0
Greece	3 881	4 537	5 218	32.1	19.7	12.0	44.6	46.5	52.6
Holy See	-	-	-						
Italy	22 134	23 058	25 775	12.6	6.8	3.3	38.5	38.9	45.2
Malta	120	140	172	8.3	2.1	1.2	10.0	0.0	0.0
Montenegro			305			12.8			38.5
Portugal	4 467	4 880	5 696	26.1	15.2	9.1	50.9	54.9	63.7
San Marino	9	11	15	22.2	9.1	6.7	50.0	0.0	0.0
Serbia [A]			4 806			12.8			38.1
Serbia and Montenegro [A]		4 893			24.5			46.5	
Slovenia		949	1 025		3.4	0.7		50.0	42.9
Spain	14 251	16 688	22 439	18.4	9.3	4.4	28.0	33.2	37.7
The former Yugoslav Republic of Macedonia		806	906		16.7	7.5		37.0	32.4
Western Europe	**75 147**	**84 729**	**92 396**	**7.1**	**3.7**	**1.9**	**38.9**	**38.0**	**36.8**
Austria	3 244	3 845	4 295	9.8	6.3	3.4	47.6	47.5	45.8
Belgium			4 713			1.3			32.2
Belgium-Luxembourg [A]	4 040	4 337		3.0	2.2		24.6	28.1	
France	24 001	25 382	28 232	8.3	4.3	2.0	35.7	35.6	33.6
Germany	35 415	39 754	41 914	6.9	3.2	1.6	44.9	40.9	36.8
Liechtenstein	11	15	18	9.1	6.7	0.0	0.0	0.0	
Luxembourg			228			1.3			33.3
Monaco	11	14	16	9.1	7.1	0.0	0.0	0.0	
Netherlands	5 388	7 454	8 713	5.6	3.9	2.5	16.7	30.9	36.4
Switzerland	3 037	3 928	4 267	6.2	4.8	3.2	26.1	35.8	43.4
NORTHERN AMERICA	**125 597**	**154 962**	**184 229**	**3.8**	**2.5**	**1.6**	**22.5**	**24.4**	**28.9**
Bermuda	28	32	34	3.6	3.1	2.9	0.0	0.0	0.0
Canada	12 102	15 023	19 320	6.7	2.8	1.7	36.2	37.1	52.6
Greenland	25	29	30	4.0	3.4	0.0	0.0	0.0	..
Saint Pierre and Miquelon	3	3	3	0.0	0.0	0.0	..	..	..
United States of America	113 439	139 875	164 842	3.5	2.4	1.6	19.7	22.8	25.9

TABLE A5
Share of households in rural areas that are female-headed, most recent and earliest observations, and total agricultural holders and female share of agricultural holders, most recent observations

	Share of rural households that are female headed		Agricultural holders	
	(%)		(Thousands)	(% of total)
	Most recent observation	Earliest observation	Total	Female share
WORLD				
COUNTRIES IN DEVELOPING REGIONS				
AFRICA	**25.5**			
Sub-Saharan Africa	**26.2**			
Eastern Africa	**29.9**			
Burundi	..	..	..	..
Comoros	31.9	..	52 464	32.6
Djibouti	..	..	..	..
Eritrea	43.2	25.9	..	..
Ethiopia	20.1	21.3	11 507 442	18.7
Ethiopia PDR	..	..	..	..
Kenya	33.8	35.3	..	..
Madagascar	20.6	20.8	2 428 492	15.3
Malawi	26.3	26.1	1 561 416	32.1
Mauritius	..	..	..	..
Mozambique	26.3	28.2	3 064 195	23.1
Réunion	..	..	..	..
Rwanda	34.0	20.8	..	..
Seychelles	..	..	..	..
Somalia	..	..	..	..
Uganda	29.3	23.8	1 704 721	16.3
United Republic of Tanzania [B]	25.0	17.2	4 901 837	19.7
Zambia	25.4	18.7	1 305 783	19.2
Zimbabwe	42.6	39.4	..	..
Middle Africa	**21.6**			
Angola	21.8	..	..	..
Cameroon	22.9	16.8	..	..
Central African Republic	18.8	..	..	..
Chad	19.1	21.5	..	..
Congo	23.4	..	..	..
Democratic Republic of the Congo	20.0	..	4 479 600	8.9
Equatorial Guinea	..	..	..	..
Gabon	25.4	..	..	..
Sao Tome and Principe	..	..	..	..

TABLE A5 *(cont.)*

	Share of rural households that are female headed		Agricultural holders	
	(%)		*(Thousands)*	*(% of total)*
	Most recent observation	Earliest observation	Total	Female share
Northern Africa				
Algeria	..	..	1 023 799	4.1
Egypt	12.0	10.9	4 537 319	5.2
Libyan Arab Jamahiriya	..	..	..	..
Morocco	12.0	13.3	1 492 844	4.4
Sudan	..	..	..	..
Tunisia	..	..	..	..
Western Sahara	..	..	..	..
Southern Africa	**46.5**			
Botswana	..	..	51 264	33.9
Lesotho	36.3	..	337 795	30.8
Namibia	47.4	30.6	..	..
South Africa	50.0	..	..	..
Swaziland	52.1	..	..	..
Western Africa	**19.2**	**14.6**		
Benin	21.1	14.2	..	..
Burkina Faso	7.5	5.0	886 638	8.4
Cape Verde	..	..	44 450	50.5
Côte d'Ivoire	13.3	13.2	1 117 667	10.1
Gambia	..	..	69 140	8.3
Ghana	30.8	34.6	..	..
Guinea	15.8	10.8	840 454	5.7
Guinea-Bissau	..	..	..	..
Liberia	26.6	28.8	..	..
Mali	11.5	7.0	805 194	3.1
Mauritania	31.7	..	..	..
Niger	18.8	8.5	..	..
Nigeria	18.6	12.9	..	..
Saint Helena	..	..	..	..
Senegal	10.7	10.5	437 036	9.1
Sierra Leone	20.7	..	..	..
Togo	22.1	..	..	..
ASIA EXCLUDING JAPAN				
Central Asia	**17.6**			
Kazakhstan	22.0	23.4	..	..
Kyrgyzstan [2]	18.0	..	246 901	12.3
Tajikistan	..	..	..	..

TABLE A5 *(cont.)*

	Share of rural households that are female headed		Agricultural holders	
	(%)		*(Thousands)*	*(% of total)*
	Most recent observation	**Earliest observation**	**Total**	**Female share**
Turkmenistan	18.6	..	..	..
Uzbekistan	11.6	..	..	..
Eastern Asia excluding Japan	**..**	**..**	**..**	**..**
China	..	..	..	..
China, Hong Kong SAR	..	..	..	..
China, Macao SAR	..	..	..	..
China, mainland	..	..	..	..
Democratic People's Republic of Korea	..	..	..	..
Mongolia	..	..	..	..
Republic of Korea	..	..	..	..
Southeastern Asia			**35 581 830**	**13.3**
Brunei Darussalam	..	..	..	..
Cambodia	23.0	25.0	..	..
Indonesia [B]	12.3	12.8	20 331 746	8.8
Lao People's Democratic Republic	..	..	667 900	9.1
Malaysia [B]	..	..	500 307	13.1
Myanmar	..	..	3 464 769	15.0
Philippines	14.4	12.1	4 768 317	10.8
Singapore	..	..	..	..
Thailand	..	..	5 787 774	27.4
Timor-Leste	..	..	..	..
Viet Nam [3] [B]	22.4	20.7	61 017	8.8
Southern Asia				
Afghanistan	..	..	..	..
Bangladesh [4][5]	13.2	8.7	..	..
Bhutan	..	..	..	..
India [6]	14.9	9.1	119 621 000	10.9
Iran (Islamic Republic of)	..	..	..	..
Maldives	..	..	..	..
Nepal	24.0	12.4	3 364 139	8.1
Pakistan	11.0	6.8	..	..
Sri Lanka	..	..	..	..
Western Asia				
Armenia	33.1	25.1	..	..
Azerbaijan	24.4	..	..	..
Bahrain	..	..	..	..
Cyprus	..	..	44 752	25.5
Georgia	..	..	728 950	29.1

TABLE A5 *(cont.)*

	Share of rural households that are female headed		Agricultural holders	
	(%)		(Thousands)	(% of total)
	Most recent observation	Earliest observation	Total	Female share
Iraq	..	..	..	..
Israel	..	..	..	..
Jordan	10.9	9.0	91 585	3.0
Kuwait	..	..	..	..
Lebanon [2]	..	..	194 264	7.1
Occupied Palestinian Territory	..	..	..	..
Oman	..	..	..	..
Qatar	..	..	..	..
Saudi Arabia	..	..	242 267	0.8
Syrian Arab Republic	..	..	..	..
Turkey	9.1	8.6	..	..
United Arab Emirates	..	..	..	..
Yemen	9.5	12.8	..	..
LATIN AMERICA AND THE CARIBBEAN				
Caribbean				
Anguilla	..	..	..	..
Antigua and Barbuda	..	..	..	..
Aruba	..	..	..	..
Bahamas	..	..	..	..
Barbados	..	..	..	..
British Virgin Islands	..	..	..	..
Cayman Islands	..	..	..	..
Cuba	..	..	..	..
Dominica	..	..	..	..
Dominican Republic [B]	29.7	18.0	243 104	10.2
Grenada	..	..	..	..
Guadeloupe	..	..	..	..
Haiti	38.6	32.9	..	..
Jamaica [B]	..	..	182 169	19.3
Martinique	..	..	..	..
Montserrat	..	..	..	..
Netherlands Antilles	..	..	..	..
Puerto Rico	..	..	17 659	8.8
Saint Kitts & Nevis	..	..	3 046	27.9
Saint Lucia	..	..	..	..
Saint Vincent and the Grenadines	..	..	..	..
Trinidad & Tobago	..	..	19 051	14.7
Turks and Caicos Islands	..	..	..	..
United States Virgin Islands	..	..	..	..

TABLE A5 *(cont.)*

	Share of rural households that are female headed		Agricultural holders	
	(%)		*(Thousands)*	*(% of total)*
	Most recent observation	Earliest observation	Total	Female share
Central America				
Belize [B]	..	..	9 697	8.1
Costa Rica	..	..	..	..
El Salvador	..	..	..	..
Guatemala	16.1	18.0	819 162	7.8
Honduras	20.2	..	..	..
Mexico	..	..	..	..
Nicaragua	19.3	20.0	196 909	18.1
Panama [B]	..	..	232 464	29.3
South America				
Argentina [B]	..	..	202 423	18.2
Bolivia (Plurinational State of)	17.1	17.3	..	..
Brazil [1]	13.7	16.8	..	..
Chile [B]	..	..	268 787	29.9
Colombia	21.7	16.7	..	..
Ecuador	..	..	842 882	25.4
Falkland Islands (Malvinas)	..	..	..	..
French Guiana	..	..	..	..
Guyana	..	..	..	..
Paraguay	13.4	..	..	..
Peru [B]	16.3	13.3	1 750 640	20.4
Suriname	..	..	..	..
Uruguay [B]	..	..	49 302	18.1
Venezuela (Bolivarian Republic of)	..	..	..	..
OCEANIA EXCLUDING AUSTRALIA AND NEW ZEALAND				
American Samoa	..	..	7 094	20.6
Cook Islands	..	..	..	..
Fiji	..	..	..	..
French Polynesia	..	..	..	..
Guam	..	..	..	..
Kiribati	..	..	..	..
Marshall Islands	..	..	..	..
Micronesia (Federated States of)	..	..	..	..
Nauru	..	..	..	..
New Caledonia	..	..	..	..
Niue	..	..	..	..
Northern Mariana Islands	..	..	214	9.3
Palau	..	..	..	..
Papua New Guinea	..	..	..	..
Samoa	..	..	14 778	1.7

TABLE A5 *(cont.)*

	Share of rural households that are female headed		Agricultural holders	
	(%)		(Thousands)	(% of total)
	Most recent observation	Earliest observation	Total	Female share
Solomon Islands	..	..	..	..
Tokelau	..	..	..	..
Tonga	..	..	..	..
Tuvalu	..	..	..	..
Vanuatu	..	..	..	..
Wallis and Futuna Islands	..	..	..	..
COUNTRIES IN DEVELOPED REGIONS				
ASIA AND OCEANIA				
Australia	..	..	..	..
Japan	..	..	..	..
New Zealand	..	..	..	..
EUROPE				
Eastern Europe				
Belarus	..	..	..	..
Bulgaria	..	..	..	..
Czech Republic	..	..	..	..
Czechoslovakia	..	..	..	..
Hungary	..	..	958 534	23.9
Poland	..	..	..	..
Republic of Moldova	30.8	..	..	..
Romania	..	..	..	..
Russian Federation	..	..	..	..
Slovakia	..	..	..	..
Ukraine	47.9	..	..	..
USSR	..	..	..	..
Yugoslav SFR	..	..	..	..
Northern Europe			**703 649**	**12.0**
Denmark [7]	..	..	57 310	8.7
Estonia	..	..	..	..
Faroe Islands	..	..	..	..
Finland [7]	..	..	75 740	10.8
Iceland [7]	..	..	..	..
Ireland [7]	..	..	141 340	10.7
Latvia	..	..	..	..
Lithuania	..	..	..	..
Norway [7]	..	..	69 959	12.9
Sweden [7]	..	..	75 910	10.0
United Kingdom [B]	..	..	283 390	18.8

TABLE A5 *(cont.)*

	Share of rural households that are female headed		Agricultural holders	
	(%)		*(Thousands)*	*(% of total)*
	Most recent observation	Earliest observation	Total	Female share
Southern Europe				
Albania	..	..	..	..
Andorra	..	..	..	..
Bosnia and Herzegovina	..	..	..	..
Croatia	..	..	..	..
Gibraltar	..	..	..	..
Greece [7]	..	..	816 530	25.1
Holy See	..	..	..	..
Italy [B]	..	..	1 663 510	32.2
Malta	..	..	..	..
Montenegro	..	..	..	..
Portugal [7]	..	..	409 308	23.2
San Marino	..	..	..	..
Serbia	..	..	778 891	18.1
Serbia and Montenegro	..	..	..	..
Slovenia	..	..	..	..
Spain [B]	..	..	988 060	28.8
The former Yugoslav Republic of Macedonia	..	..	..	..
Western Europe			**1 219 730**	**17.3**
Austria [7]	..	..	194 910	29.5
Belgium [7]	..	..	59 280	15.0
Belgium-Luxembourg	..	..	..	..
France [B]	..	..	427 630	23.1
Germany [7]	..	..	440 060	8.8
Liechtenstein	..	..	..	..
Luxembourg [7]	..	..	2 750	19.6
Monaco	..	..	..	..
Netherlands [7]	..	..	95 100	7.8
Switzerland	..	..	..	..
NORTHERN AMERICA				
Bermuda	..	..	..	..
Canada	..	..	..	..
Greenland	..	..	..	..
Saint Pierre and Miquelon	..	..	..	..
United States of America	..	..	..	..

TABLE A6
Share of adult population with chronic energy deficiency (CED – body mass index less than 18.5) by sex and share of children underweight by sex, residence and household wealth quintile, most recent observations

	Share of adult population with CED *(% of total)*		Share of children underweight *(% of total)*					
			By sex		By residence		By household wealth quintile	
	Women	Men	Male	Female	Urban	Rural	Poorest	Richest
WORLD								
COUNTRIES IN DEVELOPING REGIONS			**18.0**	**17.3**	**14.0**	**19.6**		
AFRICA	**12.5**		**20.6**	**19.2**	**14.5**	**20.8**	**27.8**	**13.5**
Sub-Saharan Africa	**13.0**		**23.1**	**21.6**	**16.8**	**24.0**	**28.8**	**15.3**
Eastern Africa	**14.5**		**27.6**	**25.3**	**19.3**	**27.3**	**32.3**	**15.5**
Burundi	..	..	..	..	22.0	41.0	..	..
Comoros	10.3	..	28.0	21.0	..	..	..	..
Djibouti [1]	..	..	34.0	33.0	30.0	42.0	..	..
Eritrea	37.3	..	41.0	39.0	29.0	45.0	49.0	20.0
Ethiopia [C]	26.5	36.7	39.0	38.0	23.0	40.0	43.0	29.0
Ethiopia PDR	..	..	..	..	..	..	..	..
Kenya [1]	12.3	..	23.0	19.0	23.0	13.0	..	..
Madagascar	19.2	..	41.0	38.0	35.0	41.0	46.0	29.0
Malawi	9.2	..	20.0	19.0	16.0	20.0	23.0	14.0
Mauritius	..	..	..	..	..	..	..	..
Mozambique	8.6	..	20.0	15.0	13.0	19.0	23.0	7.0
Réunion	..	..	..	..	..	..	..	..
Rwanda	9.8	..	23.0	22.0	16.0	24.0	31.0	10.0
Seychelles	..	..	..	..	..	..	..	..
Somalia	..	..	37.0	34.0	23.0	43.0	48.0	16.0
Uganda	12.1	..	21.0	20.0	14.0	21.0	25.0	11.0
United Republic of Tanzania	10.4	..	22.0	22.0	17.0	23.0	25.0	12.0
Zambia	9.6	..	21.0	18.0	17.0	20.0	21.0	14.0
Zimbabwe [C]	9.2	15.5	17.0	16.0	11.0	18.0	21.0	9.0
Middle Africa	**13.4**		**23.3**	**21.2**	**18.2**	**25.4**	**29.8**	**14.5**
Angola	..	..	32.0	29.0	30.0	32.0	..	..
Cameroon	6.7	..	21.0	17.0	11.0	26.0	35.0	6.0
Central African Republic	15.3	..	31.0	26.0	26.0	30.0	30.0	22.0
Chad	20.3	..	37.0	37.0	30.0	38.0	48.0	29.0
Congo	13.2	..	15.0	14.0	10.0	18.0	19.0	5.0
Democratic Republic of the Congo	18.5	..	33.0	30.0	24.0	36.0	34.0	20.0
Equatorial Guinea	..	..	19.0	18.0	15.0	21.0	..	..
Gabon	6.6	..	13.0	11.0	10.0	17.0	..	..
Sao Tome and Principe	..	..	9.0	9.0	8.0	11.0	13.0	5.0

TABLE A6 *(cont.)*

	Share of adult population with CED *(% of total)*		Share of children underweight *(% of total)*					
			By sex		By residence		By household wealth quintile	
	Women	Men	Male	Female	Urban	Rural	Poorest	Richest
Northern Africa			**10.3**	**9.7**	**5.3**	**8.0**	**16.8**	**8.0**
Algeria	..	..	4.0	4.0	3.0	4.0	5.0	3.0
Egypt	1.6	3.2	8.0	7.0	7.0	8.0	9.0	7.0
Libyan Arab Jamahiriya	..	..	5.0	4.0	4.0	6.0	..	..
Morocco [C]	7.3	5.7	10.0	10.0	7.0	14.0	17.0	4.0
Sudan	..	..	32.0	30.0	..	..	36.0	18.0
Tunisia	..	..	3.0	3.0	..	..	..	..
Western Sahara	..	..	..	..	..	..	..	..
Southern Africa	**7.8**		**14.4**	**14.2**	**12.0**	**15.2**		
Botswana	..	..	13.0	13.0	12.0	14.0	..	..
Lesotho	5.7	..	19.0	21.0	16.0	20.0	27.0	11.0
Namibia	15.9	..	21.0	21.0	15.0	25.0	27.0	9.0
South Africa	6.2	12.5	13.0	11.0	12.0	11.0	..	..
Swaziland	3.2	10.1	6.0	5.0	5.0	6.0	8.0	4.0
Western Africa	**12.9**		**27.1**	**25.8**	**17.7**	**28.1**	**32.4**	**15.8**
Benin	9.2	..	24.0	21.0	18.0	25.0	..	..
Burkina Faso	20.8	..	38.0	37.0	26.0	41.0	44.0	24.0
Cape Verde [1]	..	..	..	..	9.0	9.0	..	..
Côte d'Ivoire	8.2	..	22.0	19.0	13.0	24.0	26.0	10.0
Gambia	..	..	21.0	20.0	15.0	23.0	26.0	14.0
Ghana [C]	8.6	16.2	18.0	17.0	12.0	21.0	25.0	8.0
Guinea	13.2	..	27.0	26.0	20.0	29.0	30.0	24.0
Guinea-Bissau	..	..	19.0	20.0	13.0	22.0	21.0	10.0
Liberia	10.0	..	25.0	23.0	21.0	25.0	27.0	18.0
Mali	13.5	..	33.0	31.0	..	..	..	..
Mauritania	13.0	..	31.0	29.0	20.0	37.0	40.0	13.0
Niger	19.2	..	45.0	44.0	27.0	47.0	48.0	30.0
Nigeria	12.2	..	29.0	28.0	22.0	32.0	35.0	13.0
Saint Helena	..	..	..	..	..	..	..	..
Senegal	18.2	..	16.0	18.0	10.0	22.0	26.0	6.0
Sierra Leone	11.2	..	32.0	29.0	23.0	33.0	36.0	21.0
Togo	10.9	..	27.0	25.0	16.0	32.0	37.0	15.0
ASIA EXCLUDING JAPAN	**13.3**		**15.6**	**19.4**	**14.7**	**19.5**		
Central Asia	**6.9**		**8.6**	**7.8**	**7.4**	**8.4**	**9.6**	**5.2**
Kazakhstan	7.4	..	4.0	4.0	3.0	5.0	5.0	1.0
Kyrgyzstan	4.2	3.2	4.0	3.0	3.0	3.0	3.0	3.0
Tajikistan	..	..	18.0	17.0	17.0	17.0	22.0	14.0

TABLE A6 *(cont.)*

	Share of adult population with CED *(% of total)*		Share of children underweight *(% of total)*					
			By sex		By residence		By household wealth quintile	
	Women	Men	Male	Female	Urban	Rural	Poorest	Richest
Turkmenistan	9.9	..	12.0	10.0	9.0	12.0	12.0	5.0
Uzbekistan	5.9	3.8	5.0	5.0	5.0	5.0	6.0	3.0
Eastern Asia excluding Japan	**6.3**	**6.0**			**4.0**	**8.0**		
China [C]	8.5	9.2	..	..	2.0	9.0	..	..
China, Hong Kong SAR	..	..	..	..	..	..	..	..
China, Macao SAR	..	..	..	..	..	..	..	..
China, mainland	..	..	..	..	..	..	..	..
Democratic People's Republic of Korea [2]	..	..	24.0	23.0	..	..	..	..
Mongolia	3.9	5.9	6.0	7.0	6.0	7.0	8.0	4.0
Republic of Korea	6.5	2.8	..	..	..	..	..	..
Southeastern Asia	**18.2**	**14.1**	**25.3**	**25.3**	**23.4**	**30.4**		
Brunei Darussalam	..	..	..	..	..	..	..	..
Cambodia	16.1	..	35.0	36.0	35.0	36.0	43.0	23.0
Indonesia	..	..	..	..	25.0	30.0	..	..
Lao People's Democratic Republic	14.8	12.1	37.0	38.0	26.0	39.0	44.0	18.0
Malaysia	10.0	9.2	19.0	19.0	16.0	23.0	..	..
Myanmar	..	..	31.0	32.0	25.0	34.0	..	..
Philippines	14.2	10.6	..	..	..	..	..	..
Singapore	14.6	4.4	4.0	3.0	..	..	..	..
Thailand	9.6	11.6	9.0	10.0	6.0	11.0	15.0	4.0
Timor-Leste	37.7	26.4	46.0	45.0	42.0	48.0	18.0	10.0
Viet Nam	28.3	24.4	21.0	19.0	12.0	22.0	29.0	10.0
Southern Asia	**23.8**		**32.9**	**33.4**	**30.3**	**39.3**		
Afghanistan [1]	..	..	38.0	40.0	47.0	50.0	..	..
Bangladesh	29.7	..	44.0	49.0	40.0	48.0	56.0	32.0
Bhutan	..	..	20.0	17.0	..	..	..	..
India	35.6	33.7	46.0	49.0	38.0	51.0	61.0	25.0
Iran (Islamic Republic of)	5.4	6.0	12.0	10.0	10.0	14.0	..	..
Maldives	..	..	31.0	30.0	..	..	..	..
Nepal	24.4	..	38.0	40.0	23.0	41.0	47.0	19.0
Pakistan	31.6	30.8	38.0	36.0	35.0	39.0	..	..
Sri Lanka [3]	16.2	..	29.0	30.0	19.0	32.0	..	..
Western Asia			**11.4**	**11.1**				
Armenia	5.2	..	2.0	6.0	4.0	4.0	5.0	1.0
Azerbaijan	4.8	2.1	9.0	10.0	6.0	13.0	17.0	4.0
Bahrain	..	..	7.0	11.0	..	..	..	..
Cyprus	6.9	1.7	..	..	..	..	..	..

TABLE A6 *(cont.)*

	Share of adult population with CED *(% of total)*		Share of children underweight *(% of total)*					
			By sex		By residence		By household wealth quintile	
	Women	Men	Male	Female	Urban	Rural	Poorest	Richest
Georgia	..	..	2.0	2.0	2.0	3.0	3.0	2.0
Iraq	..	..	8.0	7.0	7.0	8.0	..	..
Israel	..	..	..	..	..	..	..	..
Jordan	3.9	..	4.0	5.0	4.0	7.0	..	..
Kuwait	2.3	2.7	10.0	9.0	..	..	..	..
Lebanon	..	..	..	..	..	..	..	..
Occupied Palestinian Territory	..	..	3.0	3.0	3.0	3.0	..	..
Oman	..	..	18.0	18.0	..	..	..	..
Qatar [2]	..	..	7.0	5.0	..	..	..	..
Saudi Arabia	4.9	5.9	17.0	12.0	..	..	..	..
Syrian Arab Republic	..	..	11.0	9.0	9.0	10.0	13.0	8.0
Turkey [C]	1.6	1.5	..	..	2.0	5.0	..	..
United Arab Emirates	10.0	..	16.0	13.0	..	..	..	..
Yemen	25.2	..	46.0	45.0	37.0	48.0	..	..
LATIN AMERICA AND THE CARIBBEAN								
Caribbean								
Anguilla	..	..	..	..	..	..	..	..
Antigua and Barbuda	..	..	..	..	..	..	..	..
Aruba	..	..	..	..	..	..	..	..
Bahamas	..	..	..	..	..	..	..	..
Barbados	3.3	3.1	..	..	..	..	..	..
British Virgin Islands	..	..	..	..	..	..	..	..
Cayman Islands	..	..	..	..	..	..	..	..
Cuba	6.2	5.3	..	..	4.0	5.0	..	..
Dominica	..	..	..	..	..	..	..	..
Dominican Republic	5.1	..	4.0	4.0	4.0	5.0	7.0	2.0
Grenada	..	..	..	..	..	..	..	..
Guadeloupe	..	..	..	..	..	..	..	..
Haiti	15.5	..	22.0	22.0	15.0	26.0	27.0	8.0
Jamaica	..	..	4.0	4.0	..	5.0	..	..
Martinique	..	..	..	..	..	..	..	..
Montserrat	..	..	..	..	..	..	..	..
Netherlands Antilles	..	..	..	..	..	..	..	..
Puerto Rico	..	..	..	..	..	..	..	..
Saint Kitts & Nevis	..	..	..	..	..	..	..	..
Saint Lucia	..	..	..	..	..	..	..	..
Saint Vincent and the Grenadines	..	..	..	..	..	..	..	..
Trinidad & Tobago	..	..	7.0	5.0	..	..	..	..
Turks and Caicos Islands	..	..	..	..	..	..	..	..
United States Virgin Islands	..	..	..	..	..	..	..	..

TABLE A6 *(cont.)*

	Share of adult population with CED *(% of total)*		Share of children underweight *(% of total)*					
			By sex		By residence		By household wealth quintile	
	Women	Men	Male	Female	Urban	Rural	Poorest	Richest
Central America	**2.9**		**9.8**	**9.9**	**6.9**	**12.9**		
Belize	..	..	5.0	7.0	4.0	8.0	..	..
Costa Rica [2]	..	..	6.0	4.0	4.0	7.0	..	..
El Salvador	..	..	10.0	11.0	7.0	13.0	..	..
Guatemala [3]	2.0	..	23.0	23.0	16.0	26.0	..	..
Honduras	4.0	..	11.0	12.0	6.0	15.0	22.0	2.0
Mexico	1.4	1.5	8.0	7.0	6.0	12.0	..	..
Nicaragua	3.7	..	7.0	7.0	5.0	9.0	11.0	2.0
Panama	3.6	2.6	8.0	8.0	..	..	..	..
South America			**7.2**	**6.9**	**5.4**	**9.9**		
Argentina [1]	3.4	..	..	..	..	..	..	..
Bolivia (Plurinational State of)	2.0	..	6.0	6.0	4.0	9.0	..	..
Brazil [C]	3.5	2.8	6.0	5.0	5.0	9.0	..	..
Chile [2]	1.1	0.6	..	..	..	..	..	..
Colombia [3]	3.9	3.7	7.0	7.0	6.0	10.0	12.0	3.0
Ecuador	..	..	9.0	10.0	8.0	11.0	..	..
Falkland Islands (Malvinas)	..	..	..	..	..	..	..	..
French Guiana	..	..	..	..	..	..	..	..
Guyana	..	..	14.0	13.0	10.0	15.0	..	..
Paraguay	..	..	5.0	3.0	3.0	6.0	9.0	0.0
Peru	1.9	..	6.0	5.0	2.0	9.0	12.0	1.0
Suriname	..	..	10.0	10.0	..	..	12.0	8.0
Uruguay	..	..	4.0	5.0	..	..	..	..
Venezuela (Bolivarian Republic of)	..	..	5.0	5.0	..	..	..	..
OCEANIA EXCLUDING AUSTRALIA AND NEW ZEALAND								
American Samoa	0.2	..	..	..	..	..	..	..
Cook Islands	..	..	..	..	..	..	..	..
Fiji	5.6	6.6	..	..	..	..	..	..
French Polynesia	..	..	..	..	..	..	..	..
Guam	..	..	..	..	..	..	..	..
Kiribati	0.6	0.3	..	..	..	..	..	..
Marshall Islands	..	..	..	..	..	..	..	..
Micronesia (Federated States of)	..	..	..	..	..	..	..	..
Nauru	..	..	..	..	..	..	..	..
New Caledonia	..	..	..	..	..	..	..	..
Niue	..	..	..	..	..	..	..	..
Northern Mariana Islands	..	..	..	..	..	..	..	..
Palau	..	..	..	..	..	..	..	..
Papua New Guinea [1]	..	..	28.0	25.0	18.0	28.0	..	..
Samoa	..	..	..	..	..	..	..	..

TABLE A6 *(cont.)*

	Share of adult population with CED *(% of total)*		Share of children underweight *(% of total)*					
			By sex		By residence		By household wealth quintile	
	Women	Men	Male	Female	Urban	Rural	Poorest	Richest
Solomon Islands	..	..	..	..	..	..	..	..
Tokelau	..	..	..	..	..	..	..	..
Tonga	..	..	..	..	..	..	..	..
Tuvalu	..	..	..	..	..	..	..	..
Vanuatu	2.9	1.0	18.0	13.0	15.0	16.0	18.0	13.0
Wallis and Futuna Islands	..	..	..	..	..	..	..	..
COUNTRIES IN DEVELOPED REGIONS								
ASIA AND OCEANIA	**5.1**	**2.3**						
Australia	2.8	1.3	..	..	..	..	..	..
Japan	10.8	4.3	..	..	..	..	..	..
New Zealand	1.6	1.3	..	..	..	..	..	..
EUROPE								
Eastern Europe	**4.9**	**1.1**						
Belarus	..	..	1.0	1.0	1.0	2.0	2.0	1.0
Bulgaria	5.9	1.6	..	..	..	..	..	..
Czech Republic	3.7	1.0	..	..	..	..	..	..
Czechoslovakia	..	..	..	..	..	..	..	..
Hungary	3.0	0.4	..	..	..	..	..	..
Poland	3.2	1.0	..	..	..	..	..	..
Republic of Moldova	5.9	..	3.0	5.0	3.0	5.0	7.0	1.0
Romania	4.8	1.1	3.0	3.0	3.0	3.0	..	..
Russian Federation	..	..	3.0	3.0	..	..	..	..
Slovakia	7.4	1.6	..	..	..	..	..	..
Ukraine [4]	5.4	..	1.0	1.0	..	..	..	..
USSR	..	..	..	..	..	..	..	..
Yugoslav SFR	..	..	..	..	..	..	..	..
Northern Europe	**3.9**	**1.7**						
Denmark	3.7	0.8	..	..	..	..	..	..
Estonia	4.4	1.3	..	..	..	..	..	..
Faroe Islands	..	..	..	..	..	..	..	..
Finland	3.1	1.6	..	..	..	..	..	..
Iceland	3.0	1.6	..	..	..	..	..	..
Ireland	1.0	2.0	..	..	..	..	..	..
Latvia	5.3	1.2	..	..	..	..	..	..
Lithuania	3.0	1.6	..	..	..	..	..	..
Norway	7.0	2.0	..	..	..	..	..	..

TABLE A6 *(cont.)*

	Share of adult population with CED *(% of total)*		Share of children underweight *(% of total)*					
			By sex		By residence		By household wealth quintile	
	Women	Men	Male	Female	Urban	Rural	Poorest	Richest
Sweden	3.0	1.0	..	..	..	..	..	..
United Kingdom	5.9	4.1	..	..	..	..	..	..
Southern Europe								
Albania	..	..	8.0	7.0	5.0	9.0	13.0	3.0
Andorra	..	..	..	..	..	..	..	..
Bosnia and Herzegovina	..	..	2.0	1.0	2.0	1.0	3.0	2.0
Croatia	0.2	0.1	..	..	..	..	..	..
Gibraltar	..	..	..	..	..	..	..	..
Greece	..	..	..	..	..	..	..	..
Holy See	..	..	..	..	..	..	..	..
Italy	5.8	0.9	..	..	..	..	..	..
Malta	3.8	1.3	..	..	..	..	..	..
Montenegro	..	..	4.0	2.0	3.0	2.0	6.0	2.0
Portugal	3.4	0.9	..	..	..	..	..	..
San Marino	..	..	..	..	..	..	..	..
Serbia	..	..	2.0	2.0	2.0	1.0	4.0	2.0
Serbia and Montenegro	..	..	..	..	..	..	..	..
Slovenia	..	..	..	..	..	..	..	..
Spain	3.0	0.5	..	..	..	..	..	..
The former Yugoslav Republic of Macedonia	6.4	..	2.0	2.0	2.0	2.0	4.0	1.0
Western Europe								
Austria	4.0	1.0	..	..	..	..	..	..
Belgium	5.3	2.6	..	..	..	..	..	..
Belgium-Luxembourg	..	..	..	..	..	..	..	..
France	..	..	..	..	..	..	..	..
Germany	..	..	..	..	..	..	..	..
Liechtenstein	..	..	..	..	..	..	..	..
Luxembourg	..	..	..	..	..	..	..	..
Monaco	..	..	..	..	..	..	..	..
Netherlands	..	..	..	..	..	..	..	..
Switzerland	5.9	1.0	..	..	..	..	..	..
NORTHERN AMERICA	**3.7**	**1.4**						
Bermuda	..	..	..	..	..	..	..	..
Canada	4.1	1.2	..	..	..	..	..	..
Greenland	..	..	..	..	..	..	..	..
Saint Pierre and Miquelon	..	..	..	..	..	..	..	..
United States of America [5]	3.3	1.5	2.0	1.0	..	..	..	..

- **References**
- **Special chapters of** *The State of Food and Agriculture*

References

Addati, L. & Cassirer, N. 2008. *Equal sharing of responsibilities between women and men, including care-giving in the context of HIV/AIDS*. Paper prepared for the Expert Group meeting on the Equal Sharing of Responsibilities between Women and Men, Including Care-giving in the Context of HIV/AIDS, organized by the United Nations Division for the Advancement of Women, Geneva, Switzerland, 6–8 October 2008.

Adeleke, O.A., Adesiyan, O.I., Olaniyi, O.A., Adelalu, K.O. & Matanmi, H.M. 2008. Gender differentials in the productivity of cereal crop farmers: a case study of maize farmers in Oluyole local government area of Oyo State. *Agricultural Journal*, 3(3): 193–198.

Adesina, A.A. & Djato, K.K. 1997. Relative efficiency of women as farm managers: profit function analysis in Côte d'Ivoire. *Agricultural Economics*, 16(1): 47–53.

Agarwal, B. 1994. *A field of one's own: gender and land rights in South Asia*. Cambridge, UK, Cambridge University Press.

Agarwal, B. 2003. Gender and land rights revisited: exploring new prospects via the state, family and market. *Journal of Agrarian Change*, (1&2): 184–224.

Ahmed, S. & Maitra, P. 2010. Gender wage discrimination in rural and urban labour markets of Bangladesh. *Oxford Development Studies*, 38(1): 83–112.

Akresh, R. 2008. *(In)Efficiency in intrahousehold allocations*. Working Paper. Department of Economics. Urbana, USA, University of Illinois at Urbana Champaign.

Alene, A.D., Manyong, V.M., Omanya, G.O., Mignouna, H.D., Bokanga, M. & Odhiambo, G.D. 2008. Economic efficiency and supply response of women as farm managers: comparative evidence from Western Kenya. *World Development*, 36(7): 1247–1260.

Allendorf, K. 2007. Do women's land rights promote empowerment and child health in Nepal? *World Development*, 35(11): 1975–1988.

Aly, H.Y. & Shields, M.P. 2010. Gender and agricultural productivity in a surplus labor traditional economy: empirical evidence from Nepal. *Journal of Developing Areas*, 42(2): 111–124.

Anríquez, G. 2010. *Demystifying the agricultural feminization myth and the gender burden*. Background paper prepared for *The State of Food and Agriculture 2010–11*. Rome, FAO.

Appleton, S. 1996. Women-headed households and household welfare: an empirical deconstruction for Uganda. *World Development*, 24(12): 1811–1827.

Armendariz, B. & Roome, N. 2008. *Empowering women via microfinance in fragile states.* CEB Working Paper 08/001. Brussels, Université Libre de Bruxelles, Solvay Business School, Centre Emile Bernheim.

Ashraf, N., Karlan, D. & Yin, W. 2010. Female empowerment: impact of a commitment savings product in the Philippines. *World Development*, 38(3): 333–344.

Baanante, C., Thompson, T.P. & Acheampong, K. 1999. Labour contributions of women to crop production activities in three regions of West Africa: an analysis of farm-survey data. *Institute of African Studies: Research Review*, 15(1): 80–100.

Baird, S., Friedman, J. & Schady, N. 2007. *Aggregate income shocks and infant mortality in the developing world.* World Bank Policy Research Working Paper 4346. Washington, DC, World Bank.

Bank of Uganda. 2001. *Annual Report 2000–2001*. Kampala.

Baydas, M.M, Meyer, R.L. & Alfred, N.A. 1994. Discrimination against women in formal credit markets: reality or rhetoric? *World Development*, 22(7): 1073–82.

Behrman, J.R. 2007. *Policy-Oriented Research Impact Assessment (PORIA) case study on the International Food Policy Research Institute (IFPRI) and the Mexican Progresa Anti-Poverty and Human Resource Investment Conditional Cash Transfer Program*. Washington, DC, IFPRI.

Behrman, J.R. & Deolalikar, A. 1988. Health and nutrition. *In* H. Chenery and T.N. Srinivasan, eds. *Handbook of development economics*, Vol. 1, pp. 633–711. Amsterdam, Elsevier.

Behrman, J.R. & Wolfe, B.L. 1989. Does more schooling make women better nourished and healthier? *Journal of Human Resources*, 24: 644–663.

Behrman, J.R., Alderman, H. & Hoddinott, J. 2004. *Hunger and malnutrition*. Paper prepared for the Copenhagen Consensus – Challenges and Opportunities. Unpublished.

Beintema, N.M. 2006. *Participation of female agricultural scientists in developing countries.* Brief prepared for the meeting "Women in Science: Meeting the Challenge", an adjunct to the CGIAR Annual General Meeting, Washington, DC, 4 December.

Beintema, N.M. & Di Marcantonio, F. 2009. *Women's participation in agricultural research and higher education: key trends in sub-Saharan Africa*. Washington, DC, and Nairobi, IFPRI and CGIAR Gender & Diversity Program.

Beneria, L. 1981. Conceptualizing the labor force: the underestimation of women's economic activities. *Journal of Development Studies*, 17(3): 10–28.

Berger, M. 1989. Giving women credit: the strengths and limitations of credit as a tool for alleviating poverty. *World Development*, 17(7): 1017–1032.

Besley, T. 1995. Savings, credit, and insurance. *In* J. Behrman and T.N. Srnivasan, eds. *Handbook of development economics,* Vol. 3, pp. 2123–2207. Amsterdam, Elsevier.

Best, M.L. & Maier, S.G. 2007. Gender, culture and ICT use in rural south India. *Gender, Technology and Development*, 11(2): 137–155.

Bhagowalia, P., Menon, P., Quisumbing, A. & Soundararajan, V. 2010. *Unpacking the links between women's empowerment and child nutrition: evidence using nationally representative data from Bangladesh*. Selected paper prepared for presentation at the AAEA, CAES, & WAEA Joint Annual Meeting, Denver, Colorado, USA, 25–27 July, 2010.

Bindlish, V., Evenson, R. & Gbetibouo, M. 1993. *Evaluation of T&V-based extension in Burkina Faso.* World Bank Technical Paper No. 226. Africa Technical Department Series. Washington, DC, World Bank.

Blackden, C.M. & Wodon, Q., eds. 2006. *Gender, time use, and poverty in sub-Saharan Africa.* World Bank Working Paper No. 73. Washington, DC, World Bank.

Blackden, C.M., Canagarajah, S., Klasen, S. & Lawson, D. 2006. *Gender and growth in sub-Saharan Africa*. UNU-WIDER Research Paper No. 2006/37. Helsinki, World Institute for Development Research.

Bloom, D.E. & Williamson, J.G. 1998: Demographic transition and economic miracles in emerging Asia. *World Bank Economic Review*, 12(3): 419–55.

Bloom, K. 2009. Social safety nets: learning from best practice. Presentation. Asian Development Bank (available at http://www.adb.org/Documents/Presentations/SocialProtection/Social-Safety-Nets.pdf).

Boucher, S., Carter, M.R. & Guirkinger, C. 2008. Risk rationing and wealth effects in credit markets: theory and implication for agricultural development. *American Journal of Agricultural Economics*, 90(2): 409–423.

Bozoglu, M. & Ceyhan, V. 2007, Measuring the technical efficiency and exploring the inefficiency determinants of vegetable farms in Samsun Province, Turkey. *Agricultural Systems*, 94: 649–656.

Bravo-Baumann, H. 2000. *Gender and livestock. Capitalisation of experiences on livestock projects and gender*. Working document. Berne, Swiss Development Cooperation.

Brown, C.K. 1994. *Gender roles in household allocation of resources and decision making in Ghana*. Legon, Ghana, Family and Development Programme, Department of Geography and Resource Development, University of Ghana.

Brown, J. 2003. Rural women's land rights in Java, Indonesia: strengthened by family law, but weakened by land registration. *Pacific Rim Law and Policy Journal*, 12(3): 631–651.

Buchy, M. & Basaznew, F. 2005. Gender-blind organizations deliver gender-biased services: the case of Awasa Bureau of Agriculture in Southern Ethiopia. *Gender, Technology and Development*, 9(2): 235–251.

Buck, A. 2001. Participatory evaluation of farmers' perceptions about impact from farmer field schools. Case study Province San Miguel, Peru. Unpublished dissertation, Technical University of Munich.

Buvinic, M., Médici, A., Fernández, E. & Torres, A.C. 2006. Gender differentials in health. *In* D.T. Jamison, J.G. Breman, A.R. Measham, G. Alleyne, M. Claeson, D.B. Evans, P. Jha, A. Mills & P. Musgrove, eds. *Disease control priorities in developing countries*. New York, USA, Oxford University Press.

CGAP (Consultative Group to Assist the Poor). 2004. Improving risk management for the poor. *Microinsurance*, No. 3. Washington, DC.

Charmes, J. 2006. A review of empirical evidence on time use in Africa from UN-sponsored surveys. *In* C.M. Blackden, & Q. Wodon, eds. *Gender, time use and poverty in sub-Saharan Africa*. World Bank Working Paper No. 73. Washington, DC, World Bank.

Chaudhury, N. & Parajuli, D. 2010. Conditional cash transfers and female schooling: the impact of the female school stipend programme on public school enrolments in Punjab, Pakistan. *Applied Economics*, 42(28): 3565–3583.

Chen, M. 2000. *Perpetual mourning: widowhood in rural India*. New Delhi and New York, USA, Oxford University Press.

Chen, T., Comfort, A. & Bau, N. 2008. *Implementing health insurance through micro-credit: a case study of SKS Microfinance, India*. Chennai, India, Institute for Financial Management and Research, Center for Microfinance.

Cheston, S. 2007. *Women and microcredit*. Note prepared for the Consultation on Strengthening Women's Control of Assets, 13 November 2007. Washington, DC, IFPRI.

Chipande, G.H.R. 1987. Innovation adoption among female-headed households. *Development and Change*, 18(2): 315–327.

Chowdhury, J.A. 2009. *Microcredit, microenterprises, and self-employment of women: experience from the Grameen Bank in Bangladesh*. Dhaka, University of Dhaka.

Coles, C. & Mitchell, J. 2010. *Gender and agricultural value chains: a review of current knowledge and practice and their policy implications*. Prepared by the SOFA team. Rome, FAO.

Davis, K., Nkonya, E., Kato, E., Ayalew, D., Odendo, M., Miiro, R. & Nkuba, J. 2009. *Impact of farmer field schools on agricultural productivity, poverty, and farmer empowerment in East Africa*. Research Report submitted to IFPRI, 31 August 2009.

de Brauw, A., Li, Q., Liu, C., Rozelle, S. & Zhang, L. 2008. Feminization of agriculture in China? Myths surrounding women's participation in farming. *The China Quarterly*, 194: 327–348.

Deere, C.D. 1982. The division of labor by sex in agriculture: a Peruvian case study. *Economic Development and Cultural Change*, 30(4): 795–811.

Deere, C.D. 2003. Women's land rights and rural social movements in the Brazilian Agrarian Reform. *Journal of Agrarian Change*, 3(1–2): 257–288.

Deere, C.D. 2005. *The feminization of agriculture? Economic restructuring in rural Latin America*. United Nations Research Institute for Social Development (UNRISD), Occasional Paper 1. Geneva, Switzerland, UNRISD.

Deere, C.D. & León, M. 2003. The gender asset gap: land in Latin America. *World Development*, 31(6): 925–47.

Deere, C.D. & Doss, C.R. 2006. *Gender and the distribution of wealth in developing countries*. UNU-WIDER Research Paper No. 2006/115. Helsinki, United Nations University and World Institute for Development Economics Research.

Deere, C.D., Alvarado, G.E. & Twyman, J. 2009. *Poverty, headship and gender inequality in asset ownership in Latin America*. Paper prepared for the 2009 Congress of the Latin American Studies Association, Rio de Janeiro, 11–14 June, 2009.

Deininger, K., Ali, D.A., Holden, S. & Zevenbergen, J. 2007. *Rural land certification in Ethiopia: process, initial impact, and implications for other African countries.* World Bank Policy Research Working Paper 4218. Washington, DC, World Bank.

Dercon, S., Hoddinott, J., Krishnan, P. & Woldehanna, T. 2007. *Collective action and vulnerability*. Collective Action and Property Rights Working Paper No. 83. Washington, DC, Consultative Group on International Agricultural Research (CGIAR).

Dillon, A. & Quiñones, E. 2010. *Gender-differentiated asset dynamics in northern Nigeria*. Background paper prepared for *The State of Food and Agriculture 2010–11*. Rome, FAO.

Djebbari, H. 2005. *The impact on nutrition of the intrahousehold distribution of power*. IZA Discussion Paper No. 1701. Bonn, Germany, Institute for the Study of Labor (IZA).

Dolan, C.S. 2001. The "good wife": struggles over resources in the Kenyan horticultural sector. *Journal of Development Studies*, 37(3): 39–10.

Dolan, C.S. 2004. "I sell my labour now": gender and livelihood diversification in Uganda. *Canadian Journal of Development Studies*, 25(4): 643–661.

Dollar, D. & Gatti, R. 1999. *Gender inequality, income, and growth: are good times good for women?* Policy Research Report on Gender and Development, Working Paper No. 1. Washington, DC, World Bank.

Doss, C.R. 2005. The effects of intrahousehold property ownership on expenditure patterns in Ghana. *Journal of African Economies*, 15(1): 149–180.

Doss, C. 2010. *If women hold up half the sky, how much of the world's food do they produce?* Background paper prepared for *The State of Food and Agriculture 2010–11*. Rome, FAO.

Doss, C. & Morris, M. 2001. How does gender affect the adoption of agricultural innovations? The case of improved maize technology in Ghana. *Agricultural Economics*, 25 (1), 27–39.

Due, J.M., Magayane, F. & Temu, A.A. 1997. Gender again – views of female agricultural extension officers by smallholder farmers in Tanzania. *World Development*, 25(5): 713–725.

Duncombe, R. & Boateng, R. 2009. Mobile phones and financial services in developing countries:

a review of concepts, methods, issues, evidence and future research directions. *Third World Quarterly*, 30(7): 1237–1258.

Eaton, C. & Shepherd, A.W. 2001. Contract farming: partnership for growth. FAO Agricultural Services Bulletin 145. Rome, FAO.

Ellis, A., Manuel, C. & Blackden, C.M. 2006. *Gender and economic growth in Uganda: unleashing the power of women*. Washington, DC, World Bank.

Estudillo, J.P., Quisumbing, A.R. & Otsuka, K. 2001. Gender differences in land inheritance, schooling and lifetime income: evidence from the rural Philippines. *The Journal of Development Studies*, 37(4): 23–48.

FAO. 1993. *Agricultural extension and women farm workers in the 1980s*. Rome.

FAO. 1997. *Women: the key to food security*. Rome.

FAO. 1998. *Village chicken production systems in rural Africa: household food security and gender issues*, by A.J. Kitalyi. Rome.

FAO. 2002. *Measurement and assessment of food deprivation and undernutrition*. Proceedings from the International Scientific Symposium convened by the Agricultural Development Economics Analysis Division, Rome, 26–28 June 2002. Rome.

FAO. 2004. *The State of Food and Agriculture 2003–04. Agricultural biotechnology: meeting the needs of the poor?* Rome.

FAO. 2006a. *Time for action: changing the gender situation in forestry*. Report of the UNECE/FAO Team of Specialists on Gender and Forestry. Rome.

FAO. 2006b. Technology for Agriculture. Labour Saving Technologies and Practices Decision Support Tool (available at http://www.fao.org/teca/tools/lst/index_en.html).

FAO. 2007. Gender mainstreaming in forestry in Africa. Regional Report. Rome.

FAO. 2009a. *The State of Food and Agriculture 2009. Livestock in the balance.* Rome.

FAO. 2009b. *The State of Food Insecurity in the World 2009. Economic crises: impacts and lessons learned.* Rome.

FAO. 2010a. *Roles of women in agriculture*. Prepared by the SOFA team and Cheryl Doss. Rome.

FAO. 2010b. FAOSTAT statistical database (available at faostat.fao.org).

FAO. 2010c. *Global Forest Resources Assessment 2010*. Rome.

FAO. 2010d. Rural Income Generating Activities (RIGA) database (available at http://www.fao.org/economic/riga/en/).

FAO. 2010e. *Gender differences in assets*. Prepared by the SOFA team. Rome.

FAO. 2010f. FAO Gender and Land Rights Database (available at http://www.fao.org/gender/landrights).

FAO. 2010g. *The State of Food Insecurity in the World 2010. Addressing food insecurity in protracted crises.* Rome.

FAO. 2010h. *Land tenure, land policy, and gender in rural areas*, by S. Lastarria-Cornhiel and A. Manji. Rome.

FAO. 2010i. *Agri-Gender Statistics Toolkit* (available at http://www.fao.org/gender/arigender/agri-gender-toolkit/it/).

FAO. 2010j. GIEWS national basic food prices: data and analysis tool (available at http://www.fao.org/giews/pricetool/).

FAO. 2010k. *Food Outlook*, November. Rome.

FAO. 2010l. *Extraordinary Joint Intersessional Meeting of the Intergovernmental Group (IGG) on Grains and the Intergovernmental Group on Rice. Final Report*. Rome.

FAO. 2011 (forthcoming). *World Census of Agriculture: analysis and international comparison of the results (1996-2005).* FAO Statistical Development Series No. 13. (Columns 3 and 4). Rome.

FAO/GSO (General Statistics Office, Cambodia)/ MoP (Ministry of Planning, Cambodia). 2010. *National gender profile of agricultural households, 2010*. Report based on the 2008 Cambodia Socio-Economic Survey. Rome.

FAO/MAF (Ministry of Agriculture and Forestry, Lao People's Democratic Republic). 2010. *National Gender Profile of Agricultural Households, 2010*. Report based on the Lao Expenditure and Consumption Surveys, National Agricultural Census and the National Population Census. Vientiane.

FAO/UNDP (United Nations Development Programme). 2002. *Gender differences in the transitional economy of Viet Nam.* Hanoi.

Fletschner, D. 2008. Women's access to credit: does it matter for household efficiency? *American Journal of Agricultural Economics*, 90(3): 669–683.

Fletschner, D. & Carter, M.R. 2008. Constructing and reconstructing gender: Reference group effects and women's demand for entrepreneurial capital. *The Journal of Socio-Economics*, 37(2): 672–693.

Fletschner, D. 2009. Rural women's access to credit: market imperfections and intrahousehold dynamics. *World Development*, 37(3): 618–631.

Fletschner, D. & Kenney, L. 2010. *Rural women's access to financial services: credit, savings, and*

insurance. Background paper prepared for *The State of Food and Agriculture 2010–11*. Rome, FAO.

Fontana, M. 2003. *The gender effects of trade liberalization in developing countries: a review of the literature*. Discussion Papers in Economics No. 101. Brighton, UK, University of Sussex.

Fontana, M. 2009. *Gender dimensions of rural and agricultural employment: differentiated pathways out of poverty*. Paper presented at the FAO-IFAD-ILO workshop on "Gaps, trends and current research in gender dimensions of agricultural and rural employment: differentiated pathways out of poverty", 31 March–2 April 2009. Rome, FAO.

Fontana, M. & Natali, L. 2008. *Gendered patterns of time use in Tanzania: public investment in infrastructure can help.* Paper prepared for the IFPRI Project "Evaluating the Long-Term Impact of Gender-focused Policy Interventions". Mimeo.

Friedemann-Sanchez, G. 2006. *Assembling flowers and cultivating homes: gender and labor in Colombia*. Lanham, USA, Lexington Books.

Fuwa, N. 2000. The poverty and heterogeneity among female-headed households revisited: the case of Panama. *World Development*, 28(8): 1515–1542.

Garcia, M. 1991. Impact of female sources of income on food demand among rural households in the Philippines. *Quarterly Journal of International Agriculture*, 30(2): 109–124.

Garikipati, S. 2008. The impact of lending to women on household vulnerability and women's empowerment: evidence from India. *World Development*, 36(12): 2620–2642.

German, L. & Taye, H. 2008. A framework for evaluating effectiveness and inclusiveness of collective action in watershed management. *Journal of International Development*, 20(1): 99–116.

Gilbert, R.A., Sakala, W.D. & Benson, T.D. 2002. Gender analysis of a nationwide cropping system trial survey in Malawi. *African Studies Quarterly*, 6 (1&2): 223–243.

Goetz, A.M. & Gupta, R.S. 1996. Who takes the credit? Gender, power, and control over loan use in rural credit programs in Bangladesh. *World Development*, 24(1): 45–63.

Goldstein, M. and Udry, C. 2008. The profits of power: land rights and agricultural investment in Ghana. *Journal of the Political Economy*, 116(6): 981–1022.

Guèye, E.F. 2000. The role of family poultry in poverty alleviation, food security and the promotion of gender equality in rural Africa. *Outlook on Agriculture*, 29(2): 129–136.

Haddad, L. 1999. The earned income by women: impacts on welfare outcomes. *Agricultural Economics*, 20(2): 135–141.

Hashemi, S.M., Schuler, S.R. & Riley, A.P. 1996. Rural credit programs and women's empowerment in Bangladesh. *World Development*, 24(4): 635–653.

Hasnah, Fleming, E. & Coelli, T. 2004. Assessing the performance of a nucleus estate and smallholder scheme for oil palm production in West Sumatra: a stochastic frontier analysis, *Agricultural Systems*, 79(1): 17–30.

Hayami, Y., Kikuchi, M., Moya, P.F., Bambo L.M. & Marciano, E.B. 1978. *Anatomy of a peasant economy: a rice village in the Philippines.* Los Baños, Philippines, International Rice Research Institute.

Hazarika, G. & Guha-Khasnobis, B. 2008. *Household access to microcredit and children's food security in rural Malawi: a gender perspective.* IZA Discussion Paper No. 3793. Bonn, Germany, Institute for the Study of Labor (IZA).

Hertz, T., Winters, P., de la O, A.P., Quinones, E.J., Azzari, C., Davis, B. & Zezza, A. 2009. *Wage inequality in international perspective: effects of location, sector, and gender.* Paper presented at the FAO-IFAD-ILO workshop on "Gaps, trends and current research in gender dimensions of agricultural and rural employment: differentiated pathways out of poverty", 31 March–2 April 2009. Rome, FAO.

Hill, R.V. & Vigneri, M. 2009. *Mainstreaming gender sensitivity in cash crop market supply chains*. Background paper prepared for *The State of Food and Agriculture 2010–11*. Rome, FAO.

Hoddinott, J. & Haddad, L. 1995. Does female income share influence household expenditure patterns? *Oxford Bulletin of Economics and Statistics*, 57(1): 77–96.

Holden, S., Shiferaw, B. & Pender, J. 2001. Market imperfections and land productivity in the Ethiopian Highlands. *Journal of Agricultural Economics*, 52(3): 53–70.

Holmes, R. & Jones, N. 2010. *Gender inequality, risk and vulnerability in the rural economy: re-focusing the public works agenda to take account of economic and social risks.* Background paper prepared for *The State of Food and Agriculture 2010–11*. Rome, FAO.

Holvoet, N. 2004. Impact of microfinance programs on children's education: do the gender of the borrower and the delivery model matter? *Journal of Microfinance*, 6(2): 1–23.

Horrell, S. & Krishnan, P. 2009. Poverty and productivity in female-headed households in Zimbabwe. *Journal of Development Studies*, 43(8): 1351–1380.

IFAD (International Fund for Agricultural Development)/FAO/ Farm-level Applied Research Methods for East and Southern Africa (FARMESA). 1998. *The potential for improving production tools and implements used by women farmers in Africa*. Rome.

IFAD. 2007. *Gender and water. Securing water for improved rural livelihoods: the multiple-uses system approach*. Rome.

Ikdahl, I. 2008. "Go home and clear the conflict": human rights perspectives on gender and land in Tanzania. *In* B. Englert & E. Daley, eds. *Women's land rights and privatization in Eastern Africa*, pp. 40–60. Woodbridge, UK, James Currey.

Ilahi, N. 2000. *The intra-household allocation of time and tasks: what have we learnt from the empirical literature?* Policy Research Report on Gender and Development, Working Paper Series No. 13. Washington, DC, World Bank.

ILO (International Labour Organization). 2009. *Key indicators of the labour market*, sixth edition. Geneva, Switzerland.

IMF (International Monetary Fund). 2010a. *World Economic Outlook* database (available at http://www.imf.org/external/pubs/ft/weo/2009/02/weodata/index.aspx).

IMF. 2010b. *World Economic Outlook*. October. Washington, DC.

IMF. 2010c. *World Economic Outlook*. April. Washington, DC.

ITU (International Telecommunication Union). 2010. *Measuring the information society 2010*. Geneva, Switzerland.

Jacoby, H.G. 1992. Productivity of men and women and the sexual division of labor in peasant agriculture of the Peruvian Sierra. *Journal of Development Economics*, 37(1–2): 265–287.

Jain, D. 1996. Valuing work: time as a measure. *Economic and Political Weekly*, 31(43): WS46–57. (pp. 48–49).

Jandu, N. 2008. *Employment guarantee and women's empowerment in rural India* (available at http://www.righttofoodindia.org/data/navjyoti08_employment_guarantee_and_women's_empowerment.pdf).

Joshi, S. 2000. Counting women's work in the Agricultural Census of Nepal: a report. *Gender, Technology, and Development*, 4 (2): 255–270.

Kalaitzidakis, P., Mamuneas, T.P., Savvides, A. & Stengos, T. 2002. Measures of human capital and nonlinearities in economic growth. *Journal of Economic Growth*, 6 (3): 229–54.

Kantor, P. 2008. Women's exclusion and unfavorable inclusion in informal employment in Lucknow, India: barriers to voice and livelihood security. *World Development*, 37(1): 194–207.

Katsi, L. 2006. Zimbabwe: Gender mainstreaming. Best practices in water supply and sanitation in Manzvire village, Chipinge district. *In* United Nations, *Gender, water and sanitation. Case studies on best practices*, pp. 47–53. New York, USA.

Katz, E. 2000. Does gender matter for the nutritional consequences of agricultural commercialization? Intrahousehold transfers, food acquisition, and export cropping in Guatemala. *In* A. Spring, ed. *Women farmers and commercial ventures: increasing food security in developing countries*, pp. 89–112. Boulder, USA, Lynne Rienner.

Kempaka, G. 2001. Coffee and its impact and relevance to PEAP (Poverty Eradication Action Plan). *In* Coffee Trade Federation. *The Coffee Yearbook 2000–2001*. Kampala.

Kennedy, E. & Haddad, L. 1994, Are pre-schoolers from female-headed households less malnourished? A comparative analysis of results from Ghana and Kenya. *Journal of Development Studies*, 30(3): 680–695.

Kennedy, E. & Peters, P. 1992. Household food security and child nutrition: the interaction of income and gender of household head. *World Development*, 20(8): 1077–1085.

Khandker, S.R., Pitt, M.M. & Fuwa, N. 2003. *Subsidy to promote girls' secondary education: the Female Stipend Program in Bangladesh*. Unpublished manuscript, Washington, DC, World Bank.

Kinkingninhoun-Mêdagbé, F.M., Diagne, A., Simtowe, F., Agboh-Noameshie, A.R. & Adégbola, P.Y. 2010. Gender discrimination and its impact on income, productivity, and technical efficiency: evidence from Benin. *Agriculture and Human Values*. 27(1): 57–69.

Klasen, S. 2002. Low schooling for girls, slower growth for all? *World Bank Economic Review*, 16(3): 345–73.

Klasen, S., & Lamanna, F. 2009. The impact of gender inequality in education and employment on economic growth: new evidence for a panel of countries. *Feminist Economics*, 15(3): 91–132.

Knowles, S., Lorgelly, P.K. & Owen, P.D. 2002. Are educational gender gaps a break on economic development? Some cross country empirical evidence. *Oxford Economic Papers*, 54(1): 118–149.

Kosczberski, G. 2001. Loose fruit Mamas: creating incentives for smallholder women in oil palm production in Papua New Guinea. *World Development*, 35(7): 1172–1185.

Kumar, S.K. 1994. *Adoption of hybrid maize in Zambia: effects on gender roles, food consumption, and nutrition*. Research Report No. 100. Washington, DC, IFPRI.

Kumar, S.K. & Hotchkiss, D. 1988. *Consequences of deforestation for women's time allocation, agricultural production, and nutrition in hill areas of Nepal*. Research Report No. 69. Washington, DC, IFPRI.

Kumase, W.N., Bisseleua, H. & Klasen, S. 2008. *Opportunities and constraints in agriculture: a gendered analysis of cocoa production in Southern Cameroon*. Discussion paper No. 27. Göttingen, Germany, Courant Research Centre "Poverty, Equity and Growth", University of Göttingen.

Kusabe, K. & Kelker, G., eds. 2001. *Gender concerns in aquaculture in Southeast Asia*. Gender Studies Monograph No. 12. Bangkok, Asian Institute of Technology, School of Environment Resources and Development.

Lagerlöf, N-P. 2003. Gender equality and long-run growth. *Journal of Economic Growth*, 8(4): 403–426.

Lastarria-Cornhiel, S. 1997. Impact of privatization on gender and property rights in Africa. *World Development*, 25(8): 1317–1333.

Leplaideur, A. 1978. *Les travaux agricoles chez les paysans du Centre-Sud Cameroun, les techniques utilisées et les temps necessaires*. Paris, IRAT.

Lilja, N., Randolph, T.F. & Diallo, A. 1998. *Estimating gender differences in agricultural productivity: biases due to omission of gender-influenced variables and endogeneity of regressors.* Selected paper submitted to the American Agricultural Economics Association meeting in Salt Lake City, Utah, USA, 2–5 August 1998.

Macours, K., Schady, N. & Vakis, R. 2008. *Cash transfers, behavioral changes, and cognitive development in early childhood: evidence from a randomized experiment*. World Bank Policy Research Working Paper No. 4759. Washington, DC, World Bank.

Maertens, M. & Swinnen, J.F.M. 2009. *Are modern supply chains bearers of gender inequality?* Paper presented at the ILO-FAO workshop "Gender Dimension of Rural Employment", 30 March–3 April 2009, Rome.

Malmberg-Calvo, C. 1994. *Case study on the role of women in rural transport: access of women to domestic facilities*. Sub-Saharan Africa Transport Policy Program Working Paper No. 12. Washington, DC, World Bank.

Mapetla, M., Matobo, T. and Setoi, S. 2007. *Burial as a social protection mechanism in Lesotho*. Commissioned Study by Regional Hunger Vulnerability Programme of Lesotho, South Africa.

Matin, I., Imam, N. & Ahmed, S.M. 2005. *Micro Health Insurance (MHI) pilot of BRAC: a demand side study.* BRAC Research Report. Dhaka.

Mayoux, L. & Hartl, M. 2009. *Gender and rural microfinance: reaching and empowering women. Guide for practitioners.* Rome, IFAD.

McCord, M. 2001. Health care microinsurance: case studies from Uganda, Tanzania, India and Cambodia. *Small Enterprise Development*, 12(1): 25–38.

McGuire, J.S. & Popkin, B.M. 1990. *Helping women improve nutrition in the developing world: beating the zero sum game*. World Bank Technical Paper (IBRD) No. 114. Washington, DC, World Bank.

Measure DHS/ICF Macro. 2010. STAT compiler (available at http://www.statcompiler.com/index.cfm).

Meier, V. 1999. Cut-flower production in Colombia: a major development success story for women? *Environment and Planning A*, 31(2): 273–289.

Meinzen-Dick, R., Quisumbing, A., Behrman, J., Biermayr-Jenzano, P., Wilde, V., Noordeloos, M., Ragasa, C. & Beintema, N. 2010. *Engendering agricultural research*. IFPRI Discussion Paper No. 973. Washington, DC, IFPRI.

Mgobo, S. 2008. *Kenya: new scheme for low-cost health insurance launched*. News article (accessed 27 January 2010 at http://allafrica.com/stories/200806231599.html).

Minot, N., Kherallah, M. & Berry, P. 2000. *Fertilizer market reform and the determinants of fertilizer use in Benin and Malawi*. Markets and Structural Studies Discussion Paper No. 40. Washington, DC, IFPRI.

Minten, B., Randrianarison, L. & Swinnen, J.F.M. 2009. Global retail chains and poor farmers: evidence from Madagascar. *World Development*, 37(11): 1728–41.

Mix Market. 2010. Profile for Spandana Sphoorty Financial Limited (accessed 27 January 2010 at http://www.mixmarket.org/mfi/spandana/data).

Moser, C. 1989. Gender planning in the Third World: meeting practical and strategic gender needs. *World Development*, 17(11): 1799–1825.

Nankhuni, F. 2004. Environmental degradation, resource scarcity and children's welfare in

Malawi: school attendance, school progress, and children's health. PhD dissertation, College of Agricultural Sciences, The Pennsylvania State University, USA.

Naved, R.T. 2000. *Intra-household impact of the transfer of modern agricultural technology: a gender perspective*. Food Consumption and Nutrition Division Discussion Paper No. 85, Washington, DC, IFPRI.

Newman, C. 2002. Gender, time use, and change: the impact of the cut flower industry in Ecuador. *The World Bank Economic Review*, 16(3): 375–396.

OECD (Organisation for Economic Co-operation and Development). 2010. The OECD Social Institutions and Gender Index (available at http://www.oecd.org/document/39/0,3343, en_2649_33935_42274663_1_1_1_1,00.html).

OECD-FAO. 2010. *OECD-FAO Agricultural Outlook: 2010–2019.* Paris, OECD, and Rome, FAO.

Okali, C. & Mims, J. 1998. *Gender and smallholder dairy production in Tanzania*. Report to the Livestock Production Programme of the United Kingdom Department for International Development (DFID), Appendixes 1 and 2, pp. 37–38.

Okello, V. 2005, The Upesi rural stoves project. *Boiling Point*, 51: 1–5.

Oladeebo, J.O. & Fajuyigb, A.A. 2007. Technical efficiency of men and women upland rice farmers in Osun State, Nigeria. *Journal of Human Ecology*, 22(2): 93–100.

Ongaro, W.A. 1990. Modern maize technology, yield variations and efficiency differentials: a case of small farms in Western Kenya. *Eastern Africa Economic Review*, 6(1): 11–29.

Ouma, J.O., De Groote, H. & Owuor, G. 2006. *Determinants of improved maize seed and fertilizer use in Kenya: policy implications*. Embu, Kenya, Agricultural Research Institute; Nairobi, International maize and Wheat improvement Centre; and Njoro, Kenya, Egerton University.

Pandolfelli, L., Meinzen-Dick, R. & Dohrn, S. 2008. Gender and collective action: motivations, effectiveness, and impact. *Journal of International Development*, 20(1), 1–11.

Paris, T.R. & Chi, T.T.N. 2005. The impact of row seeder technology on women labor: a case study in the Mekong Delta, Vietnam. *Gender Technology and Development*, 9: 157–184.

Pasquet, P. & Koppert, G. 1993. Activity patterns and energy expenditure in Cameroonian tropical forest populations. *In* C.M. Hladik, A. Hladik, O.F. Linares, H. Pagezy, A. Semple & M. Hadley. *Tropical forests, people and food: biocultural interactions and applications to developmen*t. Man and the Biosphere Series, 13. Paris, UNESCO, and Carnforth, USA, The Parthenon Publishing Group.

Pasquet, P. & Koppert, G. 1996. Budget-temps et dépense énergétique chez les essarteurs forestiers du Cameroun. *In* C.M. Hladik, A. Hladik, H. Pagezy, O.F. Linares, G. Koppert & A. Froment, eds. *L'alimentation en forêt tropical: Interactions bioculturelles et perspectives de développement*. L'Homme et la Biosphère. Paris, UNESCO.

Peterman, A., Quisumbing, A. & Behrman, J. 2010. *Review of empirical evidence on gender differences in non-land agricultural inputs, technology, and services in developing countries*. Background paper prepared for *The State of Food and Agriculture 2010–11*. Rome, FAO.

Peters, P.E. 1986. Household management in Botswana: cattle, crops, and wage labor. *In* J.L. Moock, ed. *Understanding Africa's rural households and farming systems*. Boulder, USA, and London, Westview.

Pitt, M.M. & Khandker, S.R. 1998. The impact of group based credit programs on poor households in Bangladesh: does the gender of participants matter? *Journal of Political Economy*, 106(5): 958–996.

Pitt, M.M., Khandker, S.R. & Cartwright, J. 2006. Empowering women with micro finance: evidence from Bangladesh. *Economic Development and Cultural Change*, 54(4): 791–831.

Porter, G. & Phillips-Howard, K. 1997. Contract farming in South Africa: a case study from Kwazulu-Natal. *Geography: Journal of the Geographical Association*, 82(3&4): 1–38.

Quisumbing, A.R. 1995. *Gender differences in agricultural productivity: a survey of empirical evidence*. FCND Discussion Paper No. 5. Washington, DC, IFPRI.

Quisumbing, A.R. 1996. Male–female differences in agricultural productivity: methodological issues and empirical evidence. *World Development*, 24(10): 1579–1595.

Quisumbing, A. & Maluccio, J. 2000. *Intrahousehold allocation and gender relations: new empirical evidence from four developing countries.* Washington, DC, IFPRI.

Quisumbing, A.R. & Otsuka, K. 2001a. Land inheritance and schooling in matrilineal societies: evidence from Sumatra. *World Development*, 29(12): 2093–2110.

Quisumbing, A.R. & Otsuka, K. with Suyanto, S., Aidoo, J.B. & Payongayong, E. 2001b. *Land, trees, and women: evolution of land tenure institutions in Western Ghana and Sumatra*. Research Report No. 121. Washington, DC, IFPRI.

Quisumbing, A.R., Estudillo, J.P. & Otsuka, K. 2003. Investment in women and its implications for lifetime incomes. *In* A.R. Quinsumbing. *Household decisions, gender and development*. Washington, DC, IFPRI.

Quisumbing, A.R. & Pandolfelli, L. 2008. *Promising approaches to address the needs of poor female farmers*. IFPRI Note 13. Washington, DC, IFPRI.

Quisumbing, A.R. & Pandolfelli, L. 2010. Promising approaches to address the needs of poor female farmers: resources, constraints, and interventions. *World Development*, 38 (4): 581–592.

Rahji, M.A.Y. & Falusi, A.O. 2005. A gender analysis of farm households labour use and its impacts on household income in southwestern Nigeria. *Quarterly Journal of International Agriculture*, 44(2): 155–166.

Rahman, S. 2010. Women's labour contribution to productivity and efficiency in agriculture: empirical evidence from Bangladesh. *Journal of Agricultural Economics*, 61(2): 318–342.

Ranson, M.K., Sinha, T., Chatterjee, M., Acharya, A., Bhavsar, A., Morris, S.S. & Mills, A. 2006. Making health insurance work for the poor: learning from SEWA's community based health insurance scheme. *Social Science and Medicine*, 62(3): 707–720.

Raynolds, L.T. 2002. Wages for wives: renegotiating gender and production relations in contract farming in the Dominican Republic. *World Development*, 30(5): 783–798.

Rola, A., Rola, W., Tiongco, M. & Delgado, C. 2006. *An example of livestock intensification and the role of smallholders: Philippines hog and poultry sectors*. MTID Discussion Paper No. 59. Washington, DC, IFPRI, Markets Trade and Institutions Division.

Saito, K., Mekonnen, H. & Spurling, D. 1994. *Raising the productivity of women farmers in sub-Saharan Africa.* World Bank Discussion Papers, Africa Technical Department Series No. 230. Washington, DC, World Bank.

Schady, N. & Rosero, J. 2008. Are cash transfers made to women spent like other sources of income? *Economics Letters*, 101 (3): 246–248.

Seck, P. 2007. *The rural energy challenge in Senegal: a mission report.* Paper prepared for the *Human Development Report 2007/2008*. Human Development Report Office Occasional Paper No. 60. New York, USA, UNDP.

Seebens, H. 2010. *Intra-household bargaining, gender roles in agriculture and how to promote welfare enhancing changes*. Background paper prepared for *The State of Food and Agriculture 2010–11*. Rome, FAO.

Singh, S. 2003. *Contract farming in India: impacts on women and child workers.* Gatekeeper Series No. 111. London, International Institute for Environment and Development.

Singh, K. & Sengupta, R. 2009. *The EU FTA in agriculture and likely impact on Indian women*. New Delhi, Consortium for Trade and Development (Centad) and Heinrich Böll Foundation.

Singh, S.P., Puna Ji Gite, L. & Agarwal, N. 2006, Improved farm tools and equipment for women workers for increased productivity and reduced drudgery. *Gender, Technology and Development*, 10 (2): 229–244.

Smith, L.C., Ramakrishnan, U., Ndiaye, A., Haddad, L. & Martorell, R. 2003. The *importance of women's status for child nutrition in developing countries*. Research Report No. 131. Washington, DC, IFPRI.

Song, Y. & Jiggins, J. 2002. The feminisation of agriculture and the implications for maize development in China. *LEISA Magazine*, 18(4): 6–8.

Spring, A. 2000. Agricultural commercialization and women farmers in Kenya. *In* A. Spring. 2000. *Women farmers and commercial ventures: increasing food security in developing countries*. Boulder, USA, Lynne Rienner Publishers, Inc.

Sriram, M.S. 2005. *Expanding financial services access for the poor: the transformation of SPANDANA*. Vastrapur, India, Indian Institute of Management.

Subbarao, K. 2003. *Systemic shocks and social protection: role and effectiveness of public works programs*. Social Protection Discussion Paper No. 0302. Washington, DC, World Bank.

Takane, T. 2008. Labor use in smallholder agriculture in Malawi: six village case studies. *African Study Monographs*, 29(4): 183–200.

Tangka, F.K., Jabbar, M.A. & Shapiro, B.I. 2000. *Gender roles and child nutrition in livestock production systems in developing countries: a critical review*. Socio-economics and Policy Research Working Paper No. 27. Nairobi, ILRI (International Livestock Research Institute).

Termine, P. 2010. *Gender inequalities in rural labour markets*. Background paper for *The State of Food and Agriculture 2010–11*. Rome, FAO.

Thapa, S. 2008. *Gender differentials in agricultural productivity: evidence from Nepalese household data*. MPRA (Munich Personal RePEc Archive)

Paper 13722 (available at http://mpra.ub.uni-muenchen.de/13722/).

Thomas, D. 1997. Incomes, expenditures and health outcomes: evidence on intrahousehold resource allocation. *In* L. Haddad, J. Hoddinott, & H. Alderman, eds. *Intrahousehold resource allocation in developing countries*. Baltimore, USA, Johns Hopkins University Press.

Thompson, J., Porras, I.T., Tumwine, J.K., Mujwahuzi, M.R., Katui-Katua, M., Johnstone, N. & Wood, L. 2001. *Drawers of water II: 30 years of change in domestic water use and environmental health in East Africa*. Summary. London, UK, International Institute for Environment and Development.

Thompson, T.P. & Sanabria, J. 2010. *The division of labour and agricultural innovation in Bangladesh: dimensions of gender*. Muscle Shoals, USA, IDFC.

Thornton, P.K., Kruska, R.L., Henninger, N., Kristjanson, P.M., Reid, R.S., Atieno, F., Odero, A.N. & Ndegwa, T. 2002. *Mapping poverty and livestock in the developing world*. Nairobi, ILRI (International Livestock Research Institute.

Timothy, A.T. & Adeoti, A.I. 2006. Gender inequalities and economic efficiency: new evidence from cassava-based farm holdings in rural south-western Nigeria. *African Development Review*, 18(3): 428–443.

Tiruneh, A., Tesfaye, T., Mwangi, W. & Verkuijl, H. 2001. *Gender differentials in agricultural production and decision-making among smallholders in Ada, Lume and Gimbichu Woredas of the Central Highlands of Ethiopia*. Mexico City, International Maize and Wheat Improvement Center and Ethiopian Research Organization.

Tripp, R., Wijeratne, M. & Piyadasa, V.H. 2005. What should we expect from farmer field schools? A Sri Lanka case study. *World Development*, 33(10): 1705–1720.

Tung, D.X. 2005. *Smallholder poultry production in Vietnam: marketing characteristics and strategies*. Paper presented at the workshop "Does Poultry Reduce Poverty? A Need for Rethinking the Approaches", 30–31 August, Copenhagen, Network for Smallholder Poultry Development.

Uaiene, R.N. & Channing, A. 2009. *Farm household efficiency in Mozambique: a stochastic frontier analysis*. Discussion Paper No. 66E. Maputo, National Directorate of Studies and Policy Analysis, and Ministry of Planning and Development, Republic of Mozambique.

Udry, C., Hoddinott, J., Alderman, H. & Haddad, L. 1995. Gender differentials in farm productivity: implications for household efficiency and agricultural policy. *Food Policy*, 20(5): 407–423.

Udry, C. 1996. Gender, agricultural production and the theory of the household. *Journal of Political Economy*, 104(5): 1010–1045.

UIS (UNESCO Institute of Statistics). 2006. Women in science: under-represented and under-measured. *UIS Bulletin on Science and Technology Statistics*, Issue No. 3 (November).

UN (United Nations). 2008. *Demographic Yearbook 2008* (available at http://unstats.un.org/unsd/demographic/products/dyb/dyb2008.htm).

UN. 2009. *The Millennium Development Goals Report 2009*. New York, USA.

UNECA (United Nations Economic Commission for Africa). 1972. Women: the neglected human resource for African development. *Canadian Journal of African Studies / Revue Canadienne des Études Africaines,* 6(2) [Special issue: The roles of African Women: past, present and future]: 359–370.

UNESCO (United Nations Educational, Scientific and Cultural Organization). 2004. *Global Monitoring Report 2003/04: Gender and education for all: the leap to equality*. Paris.

van den Berg, H. & Jiggins, J. 2007. Investing in farmers: the impacts of farmer field schools in relation to integrated pest management. *World Development*, 35(4): 663–686.

Vasquez-Caicedo, G., Portocarrero, J., Ortiz, O. & Fonseca, C. 2000. *Case studies on farmers' perceptions about farmer field school (FFS) implementation in San Miguel Peru: contributing to establish the baseline for impact evaluation of FFS*. Report prepared for the World Bank.

von Braun, J. & Webb, P.J.R. 1989. The impact of new crop technology on the agricultural division of labour in a West African setting. *Economic Development and Cultural Change*, 37(3): 513–34.

von Braun, J., Hotchkiss, D. & Immink, M. 1989. *Nontraditional export crops in Guatemala: effects on production, income and nutrition*. Research Report 73. Washington, DC, IFPRI.

Wanjiku, J., Manyengo, J.U., Oluoch-Kosura, W. & Karugia, J.T. 2007. *Gender differentiation in the analysis of alternative farm mechanization choices on small farms in Kenya.* UNU-WIDER Research Paper No. 2007/15. Helsinki, World Institute for Development Economics Research.

Warner, R. & Bauer, M. 2002. *Mama Lus Frut scheme: an assessment of poverty reduction*. ACIAR Impact

Assessment Series No. 20. Canberra, Australian Centre for International Agricultural Research.

White, S. 1991. *Evaluating the impact of NGOs in rural poverty alleviation: Bangladesh country study.* London, Overseas Development Institute.

WWB (Women's World Banking). 2010. Website (available at http://www.swwb.org).

World Bank. 2003. *Implementation Completion Report on a loan in the amount of 10 million US$ equivalent to the Kingdom of Morocco for a rural water supply and sanitation project.* Report No. 25917. Washington, DC, World Bank.

World Bank. 2007a. *World Development Report 2008. Agriculture for development*. Washington, DC.

World Bank. 2007b. Promoting gender equality and women's empowerment. In: *Global Monitoring Report 2007: Millennium Development Goals: Confronting the challenges of gender equality and fragile states*, pp. 105–148, Washington, DC.

World Bank. 2008. *Building roads to democracy*. Social Development Notes, Participation and Civic Engagement, No. 111, Washington, DC.

World Bank, FAO & IFAD. 2009. *Gender in agriculture sourcebook*. Washington, DC, World Bank.

WHO (World Health Organization). 2010. Global Database on Body Mass Index (available at http://apps.who.int/bmi/index.jsp).

Zavale, H., Mabaya, E. & Christy, R. 2006. *Smallholders' cost efficiency in Mozambique: implications for improved maize seed adoption*. Contributed paper prepared for presentation at the International Association of Agricultural Economists Conference, Gold Coast, Australia, 12–18 August 2006.

Zezza, A., Davis, B., Azzarri, C., Covarrubias, K., Tasciotti, L. & Anríquez, G. 2008. *The impact of rising food prices on the poor*. Agricultural Development Economics Division Working Paper No. 08-07, Rome, FAO.

Zhang, L., De Brauw, A. & Rozelle, S. 2004. China's rural labor market development and its gender implications. *China Economic Review*, 15(2): 230–247.

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THE STATE OF FOOD AND AGRICULTURE

2010-11

Women make significant contributions to the rural economy in all developing country regions. Their roles differ across regions, yet they consistently have less access than men to the resources and opportunities they need to be more productive. Increasing women's access to land, livestock, education, financial services, extension, technology and rural employment would boost their productivity and generate gains in terms of agricultural production, food security, economic growth and social welfare. Closing the gender gap in agricultural inputs alone could lift 100–-150 million people out of hunger. No blueprint exists for closing the gender gap, but some basic principles are universal: governments, the international community and civil society should work together to eliminate discrimination under the law, to promote equal access to resources and opportunities, to ensure that agricultural policies and programmes are gender-aware, and to make women's voices heard as equal partners for sustainable development. Achieving gender equality and empowering women in agriculture is not only the right thing to do. It is also crucial for agricultural development and food security.

ISBN 978-92-5-106768-0 ISSN 0081-4539

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I2050E/1/01.11